



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 25, 2004

U. S. Army Corps of Engineers
Regulatory Field Office
6508 Falls of the Neuse Road
Suite 120
Raleigh, NC 27615

ATTN: Mr. John T. Thomas, Jr.
NCDOT Coordinator

Subject: **Nationwide 33 Permit Application** for the Replacement of Bridge No. 57 on NC 88, over Buffalo Creek in Ashe County. State Project No. 8.1711301, Federal Aid Project No. BRSTP-88(1), WBS Element 32980.1.1, Division 11, TIP No. B-3300

Dear Sir:

Please find enclosed three copies of the Categorical Exclusion (CE) Document, as well as the Pre-construction Notification, permit drawings and ½ size plans for the above referenced project. The NCDOT proposes to replace the 120.5 foot Bridge No. 57 over Buffalo Creek with a new bridge approximately 50 feet west of the existing bridge. The new bridge will be a 115 foot pre-stressed girder, single span bridge with no bents in the water. The new bridge will have 3 lanes and will be constructed in stages. There will 0.007 acre of temporary fill in the surface water due to a temporary work pad. Traffic will be maintained onsite during construction. Instream work and land disturbance activities within the 25-foot buffer zone are prohibited during trout spawning season of October 15 through April 15.

IMPACTS TO WATERS OF THE UNITED STATES

General Description: The project area is located in sub-basin 050702 (New River Basin) and has a Hydrologic Unit Code of 05050001. There are three jurisdictional streams within the project study area: Buffalo Creek, Little Buffalo Creek and an unnamed tributary to Little Buffalo Creek. Impacts from the new bridge construction will involve Buffalo Creek. Little

Buffalo Creek meets Buffalo Creek downstream of the bridge site and is listed on NCDWQ's 303(d) list of impaired waters due to point source pollution and urban runoff.

Buffalo Creek originates west of NC 88 and flows north to its confluence with North Fork New River downstream of the project area. Buffalo Creek has a best usage classification of C Tr+. The Tr (Trout Waters) designation indicates waters suitable for natural trout propagation and maintenance of stocked trout. The special designation "+" identifies waters that are subject to a special management strategy specified in 15A NCAC 2B.0225 the Outstanding Resource Waters (ORW) rule. The North Fork New River flows into the New River approximately 25 miles downstream. The New River is designated ORW. Best Management Practices for Design Standards in Sensitive Watersheds will be followed for this project.

Temporary Impacts: A temporary workpad will be put in place below the proposed new bridge site to aid in construction for the new bridge. The workpad will impose 0.007acre of fill in Buffalo Creek. The new bridge will be placed at a higher elevation (approximately 1-2 feet) than the existing bridge and the bents will be placed outside the water's edge. The new bridge will also be located 50 feet west of the existing bridge on a new alignment. This will greatly improve the horizontal alignment of NC 88.

Permanent Impacts: There will be no permanent impacts to surface waters due to the new bridge.

Bridge Demolition: Bridge No. 57 has a superstructure composed of a reinforced concrete floor on I-beams. The substructure is composed of abutments, reinforced concrete spill throughs, interior bents and reinforced concrete posts and beams. The deck, curb and bents are proposed for removal in a manner which avoids dropping any components into the water; however, with the presence of reinforced concrete in the superstructure over Buffalo Creek temporary fill associated with bridge removal may occur. Best Management Practices for Bridge Demolition and Removal will be followed to avoid any temporary fill from entering Waters of the United States.

Utility Impacts: There will be no sewer, water, electric or other utility impacts due to this bridge replacement project.

Restoration Plan: The material used for installation of the temporary work pad within the surface waters will be removed after its purpose has been served. The temporary fill areas will be restored to their original contours. After the temporary work pad is no longer needed, the contractor will use excavating equipment to remove all material within jurisdictional areas. All material will become the property of the contractor. The contractor will be required to submit a reclamation plan for removal of and disposal of all material off-site.

Schedule: The project schedule calls for a February 15, 2005 LET date with a date of availability of March 22, 2005.

PROTECTED SPECIES

Plants and animals with federal classification of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA). As of January 29, 2003 the U.S. Fish and Wildlife Service (USFWS) lists seven federally-protected species for Ashe County (see Table 1). Surveys for protected species were conducted in August 2001 and no species listed in the below table were found. Habitat was found for the bog turtle and Virginia spiraea. Habitat for the bog turtle exists near the project site, although it is completely avoided by all project construction. Virginia spiraea was surveyed a second time in June 2004 and again, not found in or around the project area.

Table 1. Federally-protected species for Ashe County.

Common Name	Scientific Name	Status	Habitat	Biological Conclusion
Bog turtle	<i>Clemmys muhlenbergii</i>	T(S/A)	Yes	Not Required
Spreading avens	<i>Geum radiatum</i>	Endangered	No	No Effect
Swamp pink	<i>Helonias bullata</i>	Threatened	No	No Effect
Roan Mountain bluet	<i>Houstonia montana</i>	Endangered	No	No Effect
Heller's blazing star	<i>Liatris helleri</i>	Threatened	No	No Effect
Virginia spiraea	<i>Spiraea virginiana</i>	Threatened	Yes	No Effect
Rock gnome lichen	<i>Gymnoderma lineare</i>	Endangered	No	No Effect

A recent review (October 2004) of the NC Natural Heritage database of rare species and unique habitats reveals no documentation of rare species or unique habitats found within 1 mile of the project study area.

AVOIDANCE, MINIMIZATION AND MITIGATION

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional stages; minimization measures were incorporated as part of the project design. Replacing Bridge No. 57 with a new single span bridge that will have no bents in the water minimizes the impacts to Buffalo Creek. Best Management Practices will be followed for this project as outlined in "Design Standards in Sensitive Watersheds" (NCAC 04B.0024). Two hazardous waste retention basins (see permit drawing sheet No. 4 of 8) will be located between the bridge approach ways and the surface waters for protection against hazardous spills. Due to the trout water classification of all the waters in the project area, these practices will be adhered to during the design and construction of this project in and around all waters in the project area.

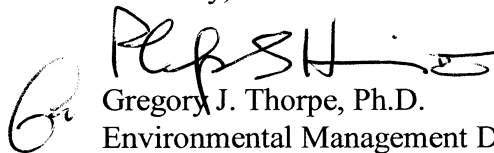
REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the temporary work pad will be authorized under Section 404 Nationwide Permit 33. We are therefore requesting the issuance of a Nationwide Permit 33 for the work pad. The project will be processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 33.

Section 401 Permit: We anticipate 401 General Certification number 3366 will apply to this project. All general condition of these Water Quality Certifications will be met, therefore, in accordance with 15A NCAC 2H, Section .0500(a) and 15A NCAC 2B.0200 we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their notification.

Thank you for your time and assistance with this project. Please contact Carla Dagnino at (919) 715-1456 if you have any questions or need any additional information.

Sincerely,



Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

Cc:

w/attachment

Mr. John Hennessy, Division of Water Quality (2 copies)
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Michael A. Pettyjohn, P.E.
Mr. Heath Slaughter, DEO

w/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Mark Staley, Roadside Environmental
Ms. Karen Capps, PDEA Project Planning Engineer
Mr. David Franklin, USACE, Wilmington
Ms. Beth Harmon, EEP

Office Use Only:

Form Version May 2002

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:

☒ Section 404 Permit☐

Riparian or Watershed Buffer Rules

☐ Section 10 Permit☐

Isolated Wetland Permit from DWQ

☒ 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 23, NW 33
3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒
4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☐
5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information

Name: NC Department of TransportationMailing Address: 1548 Mail Service CenterRaleigh, NC 27699-1548Telephone Number: (919) 733-3141Fax Number: (919) 715-1501

E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: NA

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____

Fax Number: _____

E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Bridge No. 57 Replacement on NC 88 over Buffalo Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3300
3. Property Identification Number (Tax PIN): NA
4. Location
County: Ashe Nearest Town: West Jefferson
Subdivision name (include phase/lot number): NA
Directions to site (include road numbers, landmarks, etc.): From West Jefferson Take NC 194 North to NC 88, follow NC 88 for approximately 2 miles to the bridge
5. Site coordinates, if available (UTM or Lat/Long): 36° 25.99'N / 81°30.67'
6. (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
7. Property size (acres): 0.246 mile x 80 feet = 2.4 acres
8. Nearest body of water (stream/river/sound/ocean/lake): Buffalo Creek
9. River Basin: New River
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
10. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project area is surrounded by a busy roadway, mature forest and residential yards.

11. Describe the overall project in detail, including the type of equipment to be used: _____
The project will consist of replacing the old bridge with a new 115 ft single span steel girder
bridge in a new location 50 feet west of the existing site. The traffic will be maintained on the
existing bridge site. Construction equipment will consist of heavy duty trucks, earth moving
equipment, cranes, etc.

12. Explain the purpose of the proposed work: Bridge No. 57 is considered functionally
obsolete and structurally deficient. The replacement of this inadequate structure will result in
a safer and more efficient traffic operations.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

NA

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

NA

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream

mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

Provide a written description of the proposed impacts: . The new bridge will have 3 lanes and will be constructed in stages. There will be 0.007 acre of temporary fill in the surface water due to a temporary work pad.

1. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 0.14

Total area of wetland impact proposed: 0

2. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
Site under bridge	Temporary Fill	0.007 acres	Buffalo Creek	30 feet	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 0.007 acre

3. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
NA				

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

4. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): NA

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): NA

Size of watershed draining to pond: _____ Expected pond surface area: _____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

Replacing Bridge No. 57 with a new single span bridge that will have no bents in the water minimizes the impacts to Buffalo Creek. Best Management Practices will be followed for this project as outlined in "Design Standards in Sensitive Watersheds" (NCAC 04B.0024). Due to the trout water classification of all the waters in the project area, these practices will be adhered to during the design and construction of this project in and around all waters in the project area.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to

freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

NA

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): NA

Amount of buffer mitigation requested (square feet): _____

Amount of Riparian wetland mitigation requested (acres): _____

Amount of Non-riparian wetland mitigation requested (acres): _____

Amount of Coastal wetland mitigation requested (acres): _____

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?

Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

NA

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

NA

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

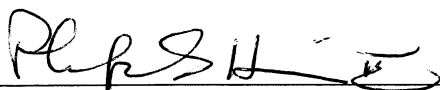
Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).



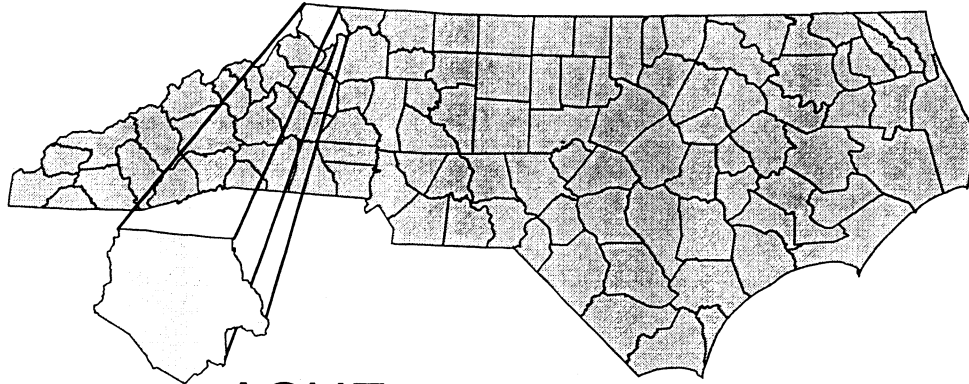
Applicant/Agent's Signature

10/26/09

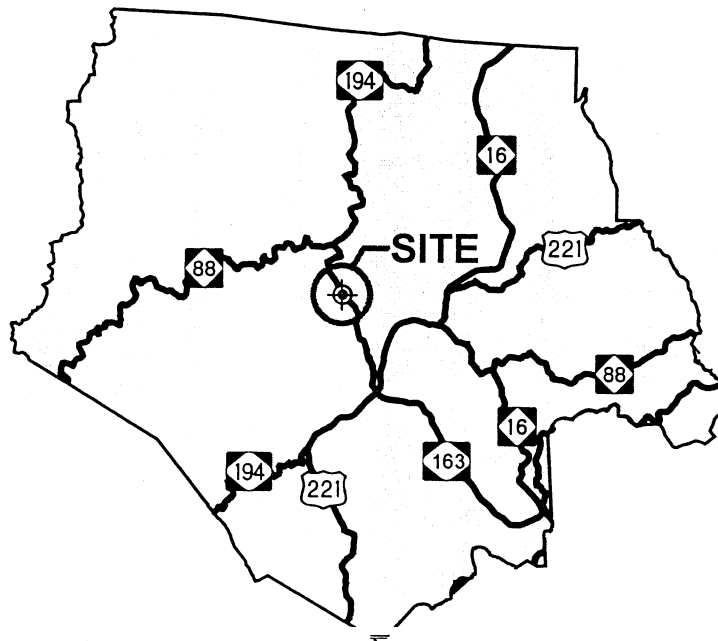
Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)

NORTH CAROLINA



ASHE



VICINITY MAPS

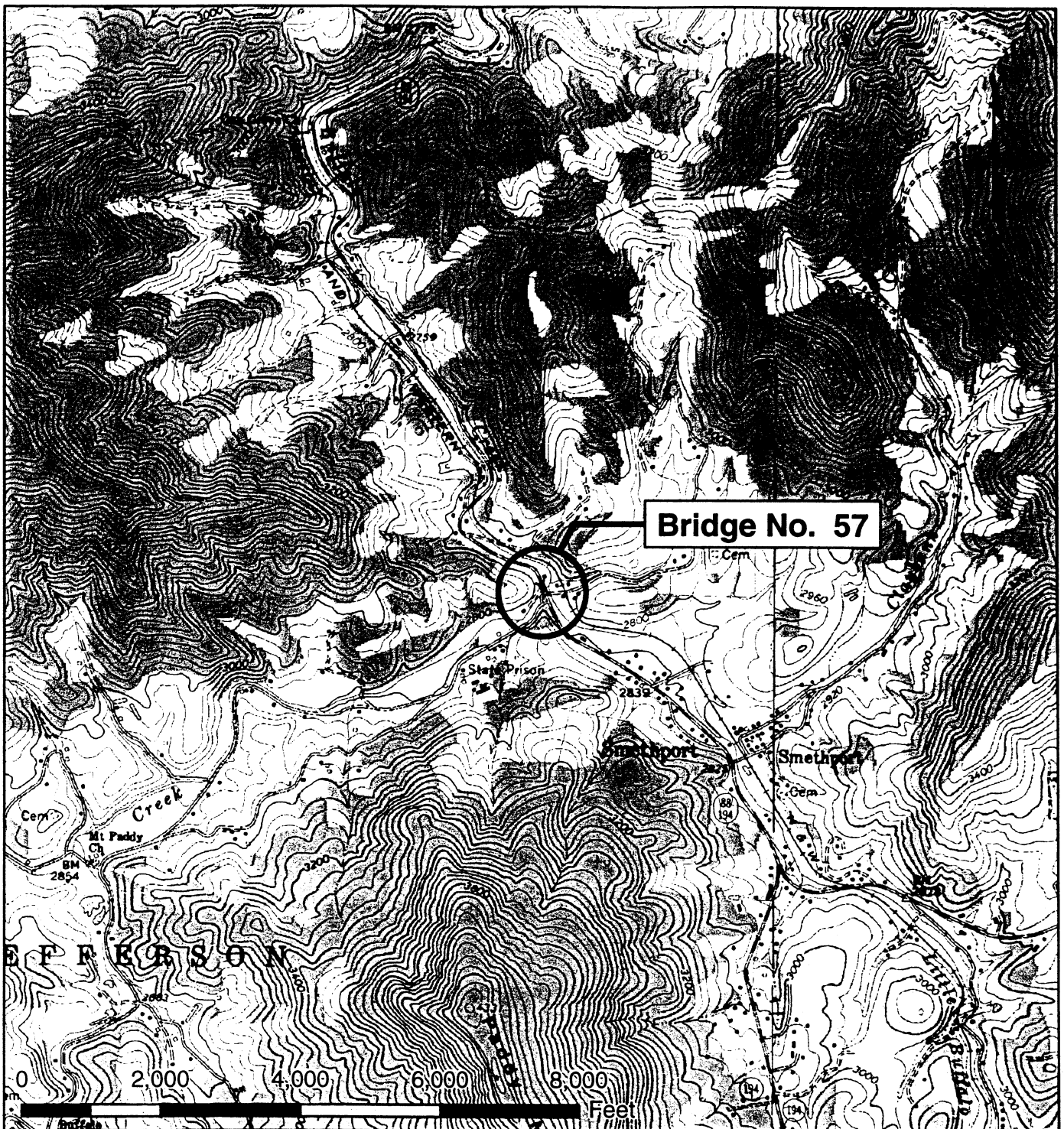
NCDOT

DIVISION OF HIGHWAYS
ASHE COUNTY

PROJECT: 8.1711301 (B-3300)
REPLACE BRIDGE NO. 57 ON NC 88
OVER BUFFALO CREEK

SHEET 1 OF 8

10/13/04



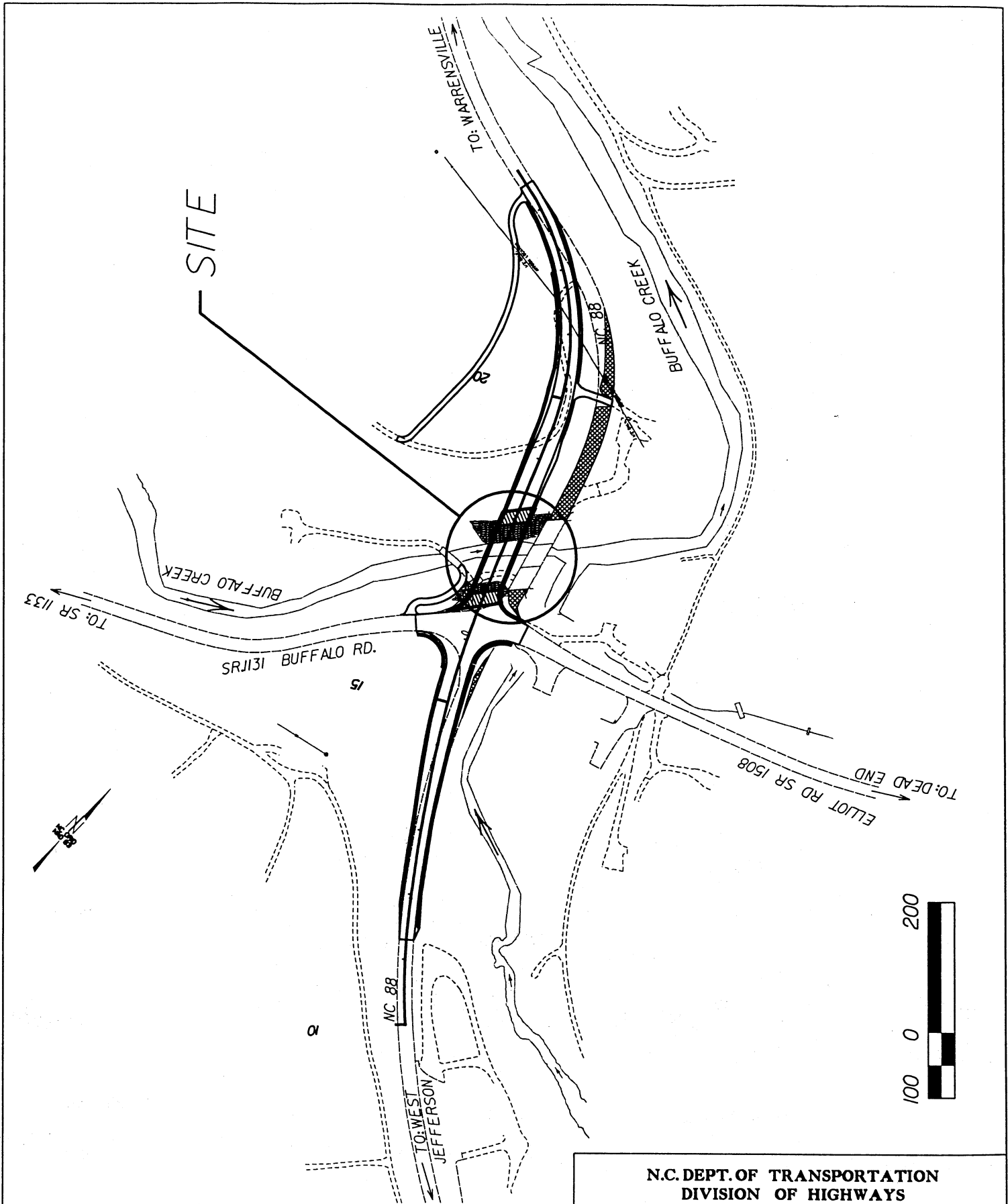
1 inch equals 2,000 feet

LOCATION

NCDOT
DIVISION OF HIGHWAYS
ASHE COUNTY
PROJECT: 8.1711301 (B-3300)
REPLACE BRIDGE NO. 57 ON NC 88
OVER BUFFALO CREEK

SHEET 2 OF 3

10/13/04



SITE MAP

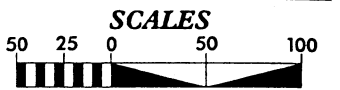
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ASHE COUNTY

PROJECT 8.1711301 (B-3300)

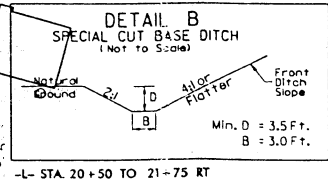
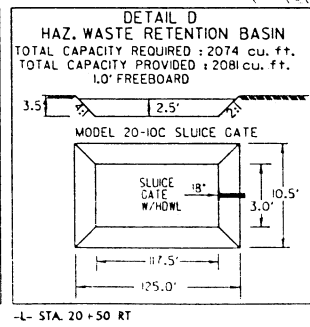
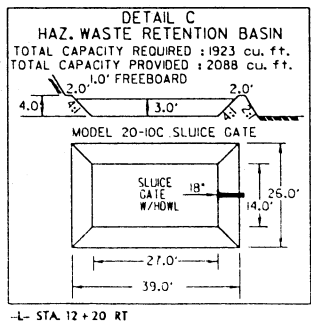
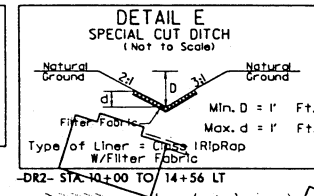
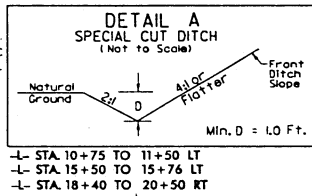
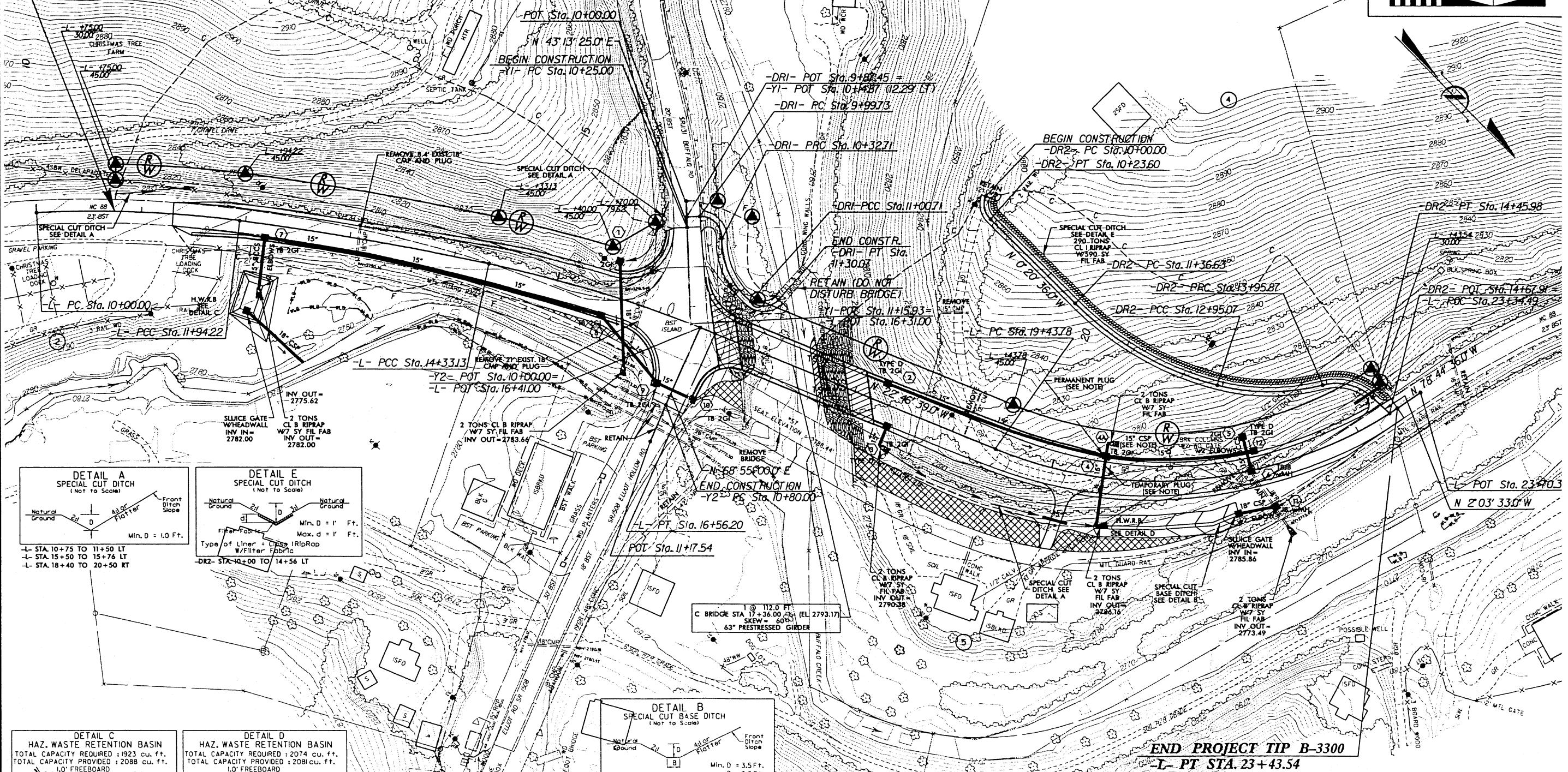
BRIDGE NO. 57 ON NC 88
OVER BUFFALO CREEK

English

PROJECT REFERENCE NO.	SHEET NO.
B-3300	4 of 8
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



BEGIN PROJECT TIP B-3300
-L- POC STA. 10+75.00

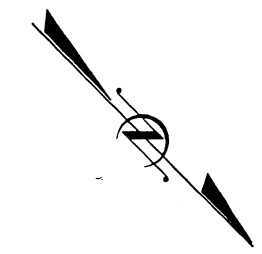
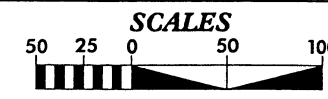


TS TS DENOTES TEMPORARY
FILL IN SURFACE
WATER

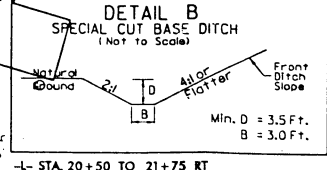
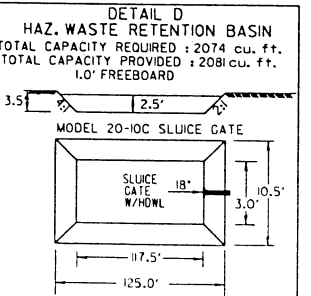
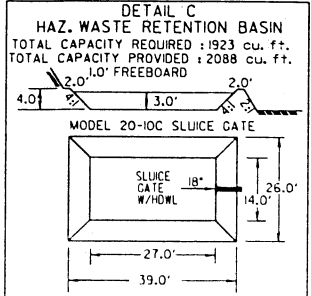
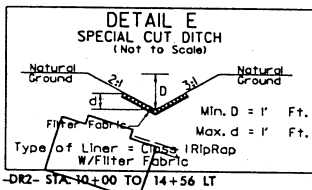
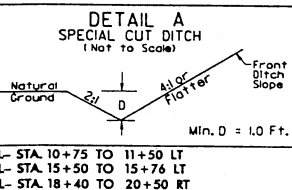
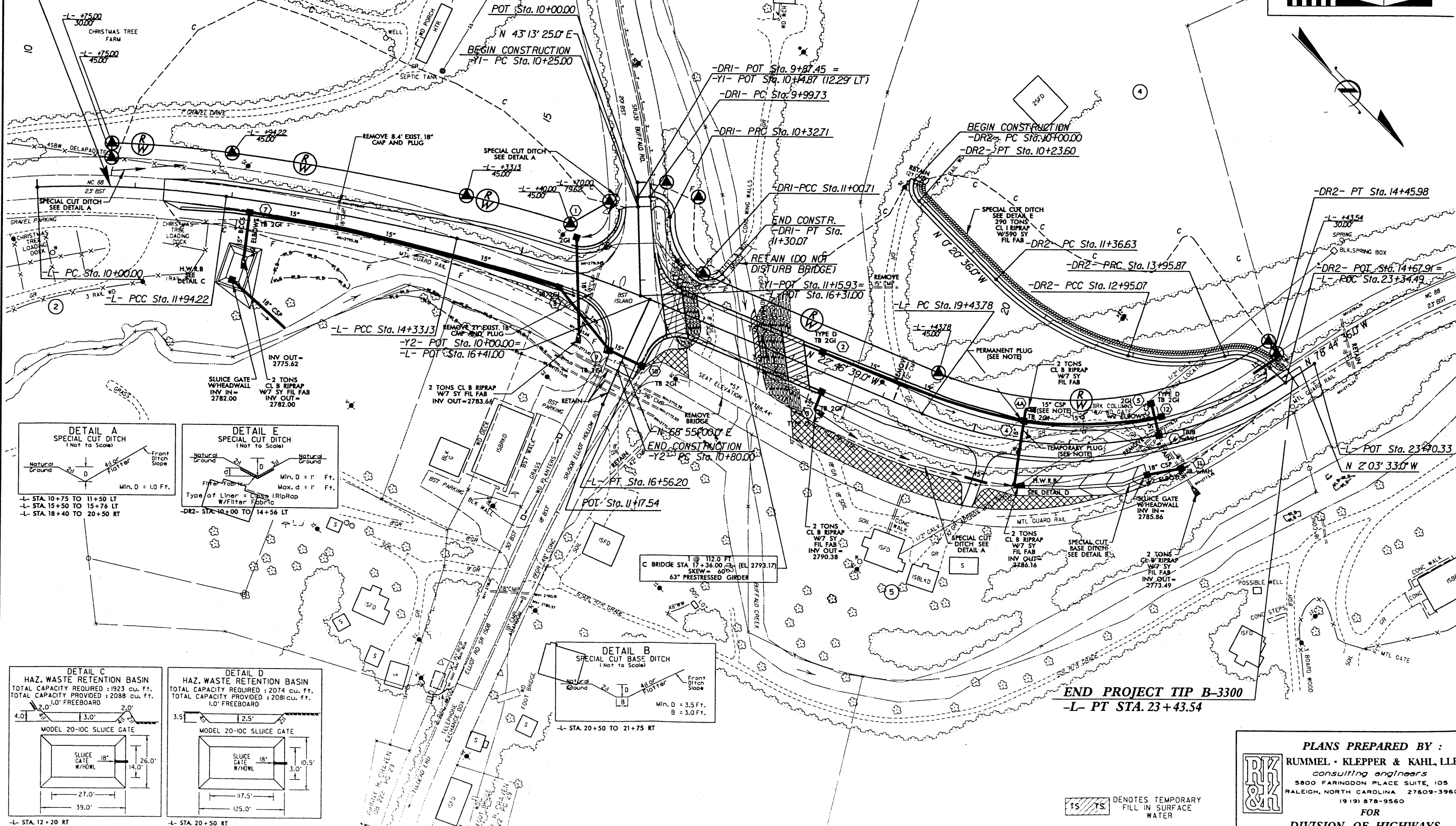
PLANS PREPARED BY :
RUMMEL • KLEPPER & KAHL, I
consulting engineers
5800 FARMINGTON PLACE SUITE 101
RALEIGH, NORTH CAROLINA 27609-31
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

English

PROJECT REFERENCE NO.	SHEET NO.
B-3300	5 of 9
R/W SHEET NO.	5 of 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



BEGIN PROJECT TIP B-3300
-L- POC STA. 10+75.00



1S 1S
DENOTES TEMPORARY
FILL IN SURFACE
WATER

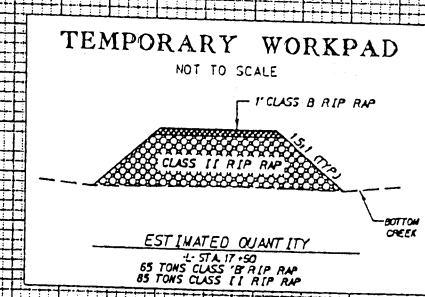
PLANS PREPARED BY :
RUMMEL • KLEPPER & KAHL, LLC
consulting engineers
5800 FARINGDON PLACE SUITE 105
RALEIGH, NORTH CAROLINA 27609-3966
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

BRIDGE DATA

BRIDGE #57

OVER BUFFALO CREEK

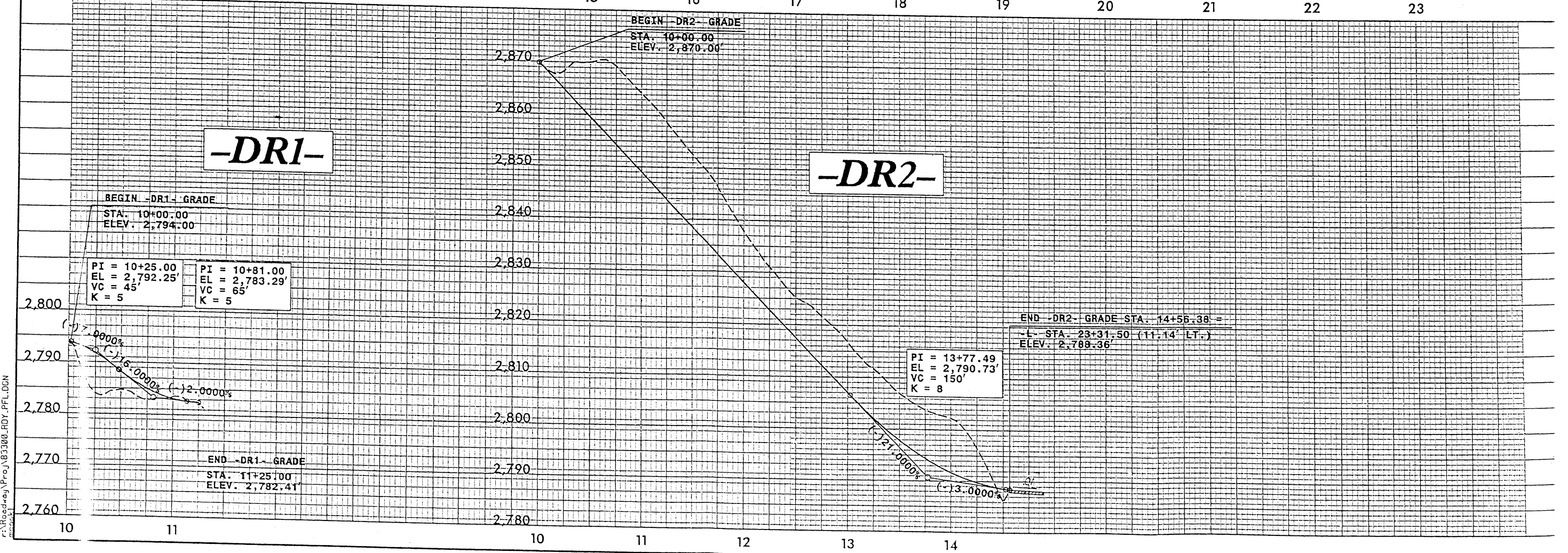
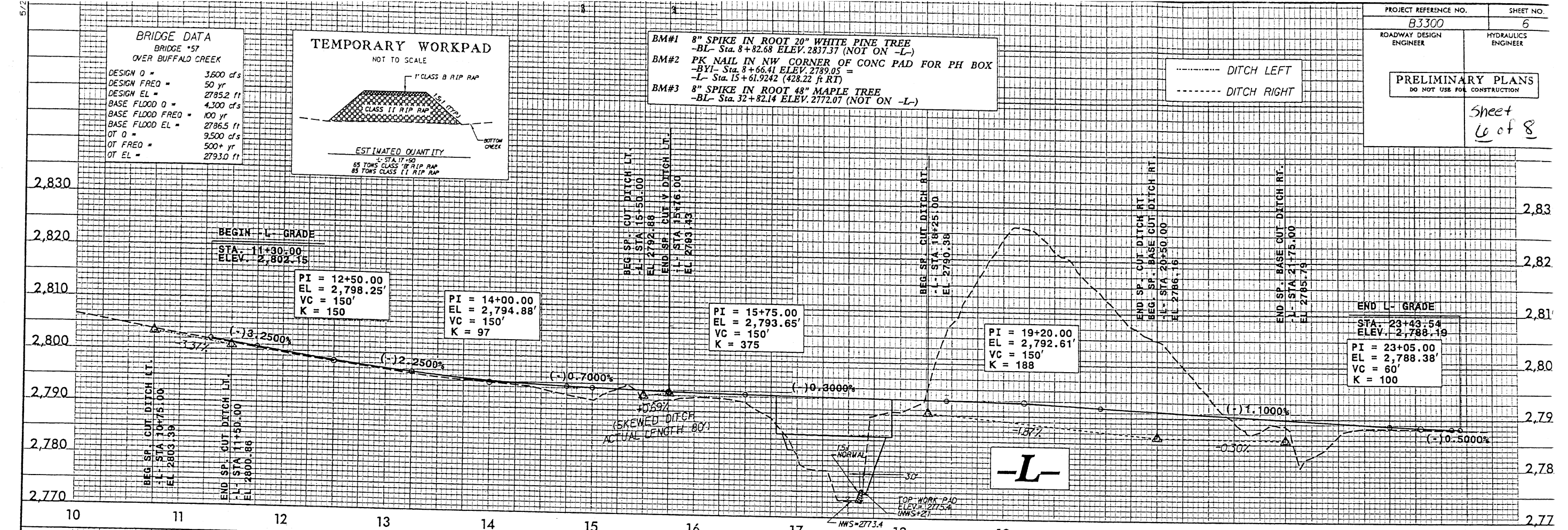
DESIGN Q =	3,600 cfs
DESIGN FREQ =	50 yr
DESIGN EL =	2785.2 ft
BASE FLOOD Q =	4,300 cfs
BASE FLOOD FREQ =	100 yr
BASE FLOOD EL =	2786.5 ft
OT Q =	9,500 cfs
OT FREQ =	500+ yr
OT EL =	2793.0 ft



- BM#1 8" SPIKE IN ROOT 20" WHITE PINE TREE
- BL- Sta. 8+82.68 ELEV. 2837.37 (NOT ON -L-)
- BM#2 PK NAIL IN NW CORNER OF CONC PAD FOR PH BOX
- BY- Sta. 8+66.41 ELEV. 2789.05 =
- L- Sta. 15+61.9242 (428.22 ft RT)
- BM#3 8" SPIKE IN ROOT 48" MAPLE TREE
- BL- Sta. 32+82.14 ELEV. 2772.07 (NOT ON -L-)

----- DITCH LEFT

----- DITCH RIGHT



WETLAND PERMIT IMPACT SUMMARY

		WETLAND IMPACTS						SURFACE WATER IMPACTS			
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design Depth (ft)
1	-L- 17+60	TEMP. WORK PAD							0.007		
TOTALS:			0	0	0	0	0	0	0.007	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

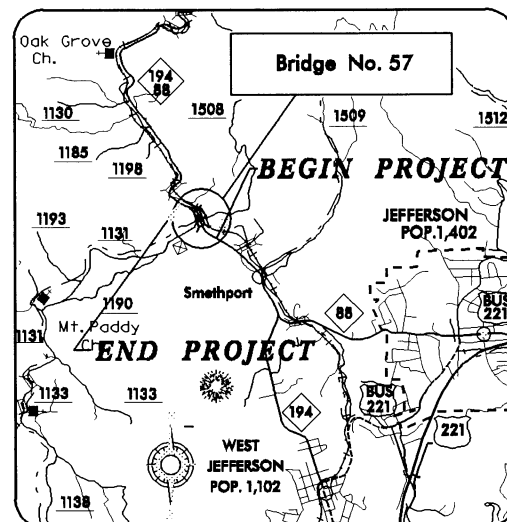
ASHE COUNTY
PROJECT 8.1711301 B3300

SHEET 3 of 3 10/13/2004

15-OCT-2004 09:49
R:\Roadway\proj\B3300_RDY.TSHDCN
K:\moland

CONTRACT: C201163 TIP PROJECT: B-3300

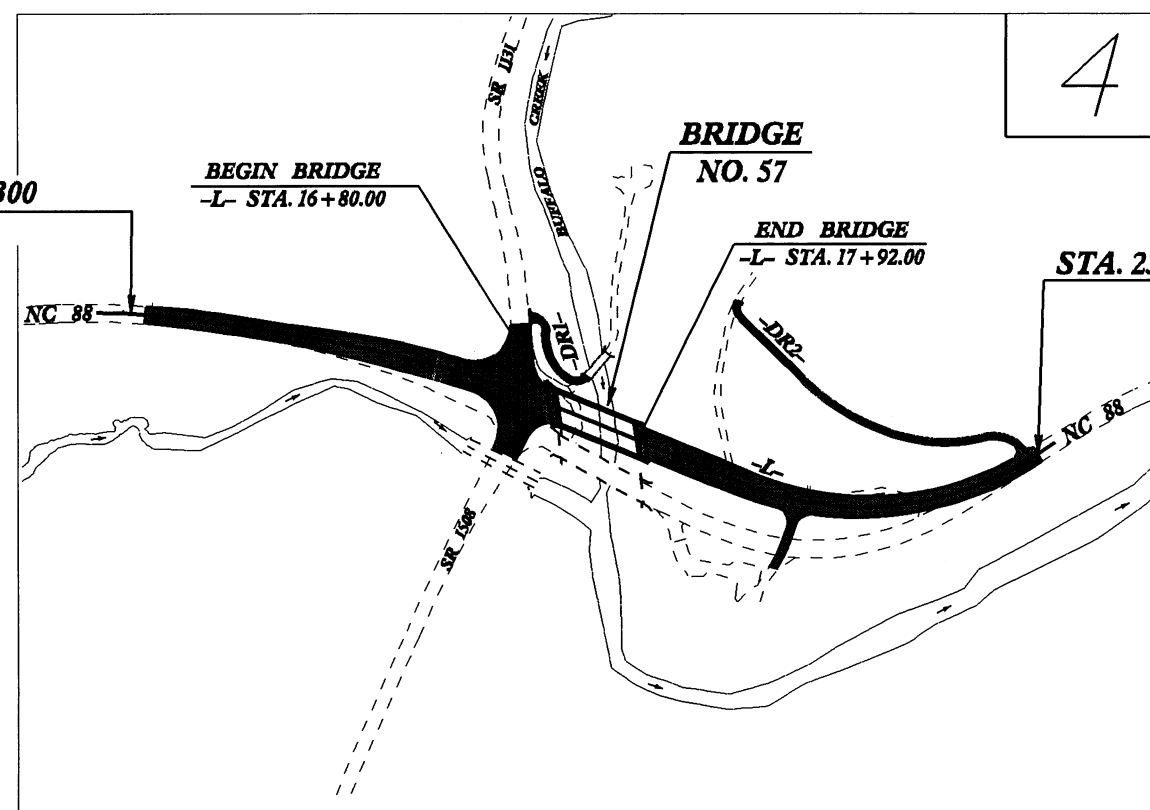
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STA. 10+75.00 -L- BEGIN TIP PROJECT B-3300

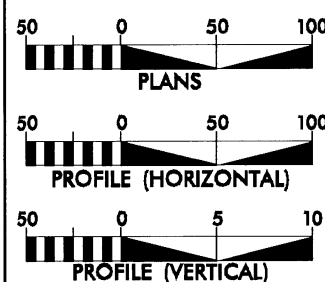
TO JEFFERSON



TO WARRENSVILLE

DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT.

GRAPHIC SCALES



DESIGN DATA

ADT 2005 = 8,900
ADT 2025 = 14,800
DHV = 12 %
D = 60 %
* T = 4 %
V = 50 MPH
* (1 % TTST & 3 % DUAL)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3300 0.219 MI
LENGTH STRUCTURE TIP PROJECT B-3300 0.021 MI
TOTAL LENGTH TIP PROJECT B-3300 0.240 MI



PLANS PREPARED BY :
RUMMELKLEPPER & KAHL LLP
consulting engineers
5800 FARMGOLD PLACE, SUITE 105
RALEIGH, NORTH CAROLINA 27609
FOR

DIVISION OF HIGHWAYS

2002 STANDARD SPECIFICATIONS
RIGHT OF WAY DATE:
July 31, 2003
LETTING DATE:
February 15, 2005

NGDOT CONTACT:

Teresa M. Bruton, P.E.
Project Engineer-Project Services

Michael T. Merritt, P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____
ROADWAY DESIGN
ENGINEER

SIGNATURE: _____
P.E.

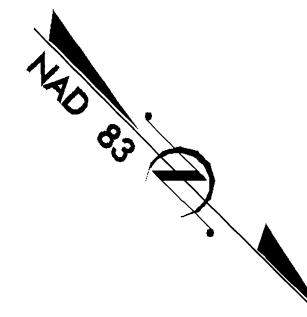
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE














STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3300	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32980.1.1	BRSTP-88(1)	PE	
32980.2.1	BRSTP-88(3)	R/W, UTIL.	
32980.3.1	BRSTP-88(4)	CONSTR.	














*S.U.E = SUBSURFACE UTILITY ENGINEER

CONVENTIONAL SYMBOLS




















ROADS & RELATED ITEMS

Edge of Pavement	
Curb	
Prop. Slope Stakes Cut	
Prop. Slope Stakes Fill	
Prop. Woven Wire Fence	
Prop. Chain Link Fence	
Prop. Barbed Wire Fence	
Prop. Wheelchair Ramp	
Curb Cut for Future Wheelchair Ramp	
Exist. Guardrail	
Prop. Guardrail	
Equality Symbol	
Pavement Removal	

RIGHT OF WAY

Baseline Control Point	
Existing Right of Way Marker	
Exist. Right of Way Line w/Marker	
Prop. Right of Way Line with Proposed	
R/W Marker (Iron Pin & Cap)	
Prop. Right of Way Line with Proposed	
(Concrete or Granite) R/W Marker	
Exist. Control of Access Line	
Prop. Control of Access Line	
Exist. Easement Line	
Prop. Temp. Construction Easement Line	
Prop. Temp. Drainage Easement Line	
Prop. Perm. Drainage Easement Line	

HYDROLOGY

Stream or Body of Water	
River Basin Buffer	
Flow Arrow	
Disappearing Stream	
Spring	
Swamp Marsh	
Shoreline	
Falls, Rapids	
Prop Lateral, Tail, Head Ditches	
	
	
	
	
	
	
	
	
	
	


STRUCTURES


MAJOR
Bridge, Tunnel, or Box Culvert _____


CONC


Bridge Wing Wall, Head Wall
and End Wall _____) CONC WW (


MINOR

Head & End Wall 





































Pipe Culvert 

Footbridge 



Drainage Boxes 

Paved Ditch Gutter 







UTILITIES

Exist. Pole	
Exist. Power Pole	
Prop. Power Pole	
Exist. Telephone Pole	
Prop. Telephone Pole	
Exist. Joint Use Pole	
Prop. Joint Use Pole	
Telephone Pedestal	
U/G Telephone Cable Hand Hold	
Cable TV Pedestal	
U/G TV Cable Hand Hold	
U/G Power Cable Hand Hold	
Hydrant	
Satellite Dish	
Exist. Water Valve	
Sewer Clean Out	
Power Manhole	
Telephone Booth	
Cellular Telephone Tower	
Water Manhole	
Light Pole	
H-Frame Pole	
Power Line Tower	
Pole with Base	
Gas Valve	
Gas Meter	
Telephone Manhole	
Power Transformer	
Sanitary Sewer Manhole	
Storm Sewer Manhole	
Tank; Water, Gas, Oil	
Water Tank With Legs	
Traffic Signal Junction Box	
Fiber Optic Splice Box	
Television or Radio Tower	
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement	















Recorded Water Line

Designated Water Line (S.U.E.*)	— W — W —
Sanitary Sewer	— SS — SS —
Recorded Sanitary Sewer Force Main	— FSS — FSS —
Designated Sanitary Sewer Force Main(S.U.E.*)	— FSS — FSS —
Recorded Gas Line	— G — G —
Designated Gas Line (S.U.E.*)	— G — G —
Storm Sewer	— S — S —
Recorded Power Line	— P — P —
Designated Power Line (S.U.E.*)	— P — P —
Recorded Telephone Cable	— T — T —
Designated Telephone Cable (S.U.E.*)	— T — T —
Recorded U/G Telephone Conduit	— TC — TC —
Designated U/G Telephone Conduit (S.U.E.*)	— TC — TC —
Unknown Utility (S.U.E.*)	— ?UTL — ?UTL —
Recorded Television Cable	— TV — TV —
Designated Television Cable (S.U.E.*)	— TV — TV —
Recorded Fiber Optics Cable	— FO — FO —
Designated Fiber Optics Cable (S.U.E.*)	— FO — FO —
Exist. Water Meter	
U/G Test Hole (S.U.E.*)	
Abandoned According to U/G Record	ATTUR
End of Information	E.O.L



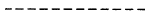



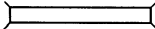
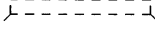





BOUNDARIES & PROPERTIES

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Property Line Symbol	
Exist. Iron Pin	
Property Corner	_____
Property Monument	
Property Number	
Parcel Number	
Fence Line	
Existing Wetland Boundaries	WW & ISBW
High Quality Wetland Boundary	WLB
Medium Quality Wetland Boundaries	HQ WLB
Low Quality Wetland Boundaries	MQ WLB
Proposed Wetland Boundaries	LQ WLB
Existing Endangered Animal Boundaries	WLB
Existing Endangered Plant Boundaries	EAB
	EPR


BUILDINGS & OTHER CULTURE


Buildings	
Foundations	
Area Outline	
Gate	
Gas Pump Vent or U/G Tank Cap	
Church	
School	
Park	
Cemetery	
Dam	
Sign	
Well	
Small Mine	
Swimming Pool	


TOPOGRAPHY


Loose Surface	
Hard Surface	
Change in Road Surface	
Curb	
Right of Way Symbol	R/W
Guard Post	 GP
Paved Walk	
Bridge	
Box Culvert or Tunnel	
Ferry	
Culvert	
Footbridge	
Trail, Footpath	
Light House	


VEGETATION


Single Tree _____ 

Single Shrub _____ 

Hedge _____ 

Woods Line _____ 

Orchard _____ 

Vineyard _____ 

RAILROADS

Standard Gauge -----

RR Signal Milepost -----

Switch -----

CSX TRANSPORTATION

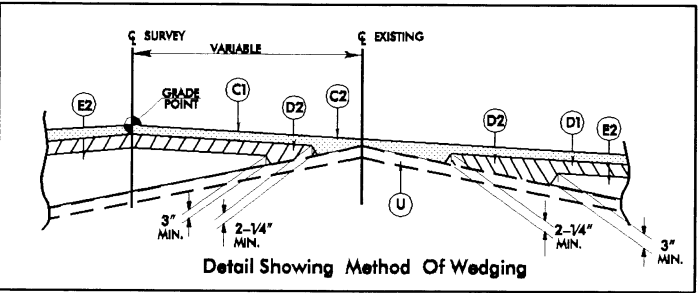
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MILEPOST 35

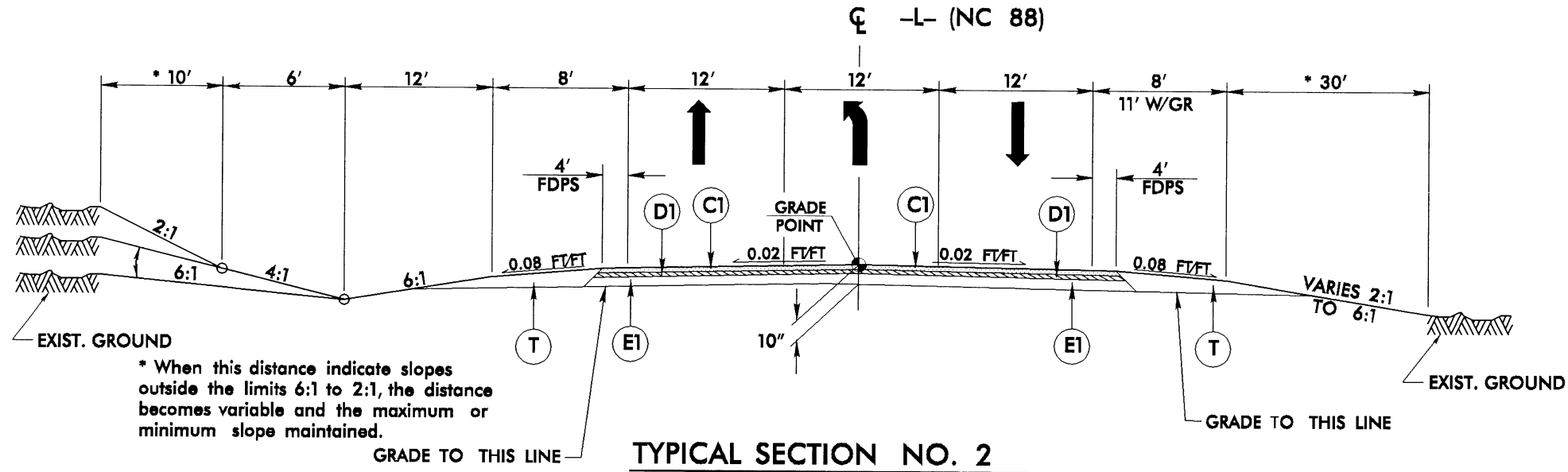
SWITCH

PAVEMENT SCHEDULE			
ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	J1	PROP. 8" AGGREGATE BASE COURSE
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	J2	PROP. 6" AGGREGATE BASE COURSE
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	T	EARTH MATERIAL
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT GREATER THAN 4" IN DEPTH OR LESS THAN 2 1/4" IN DEPTH.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 5" BITUMINOUS CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	W	WEDGING
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5 1/2" IN DEPTH OR LESS THAN 3" IN DEPTH.		

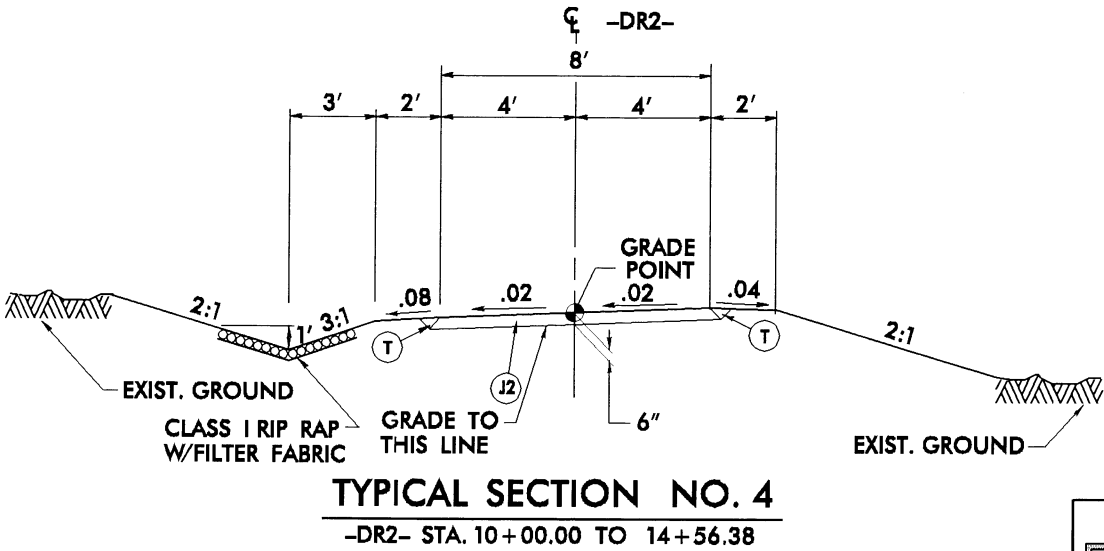
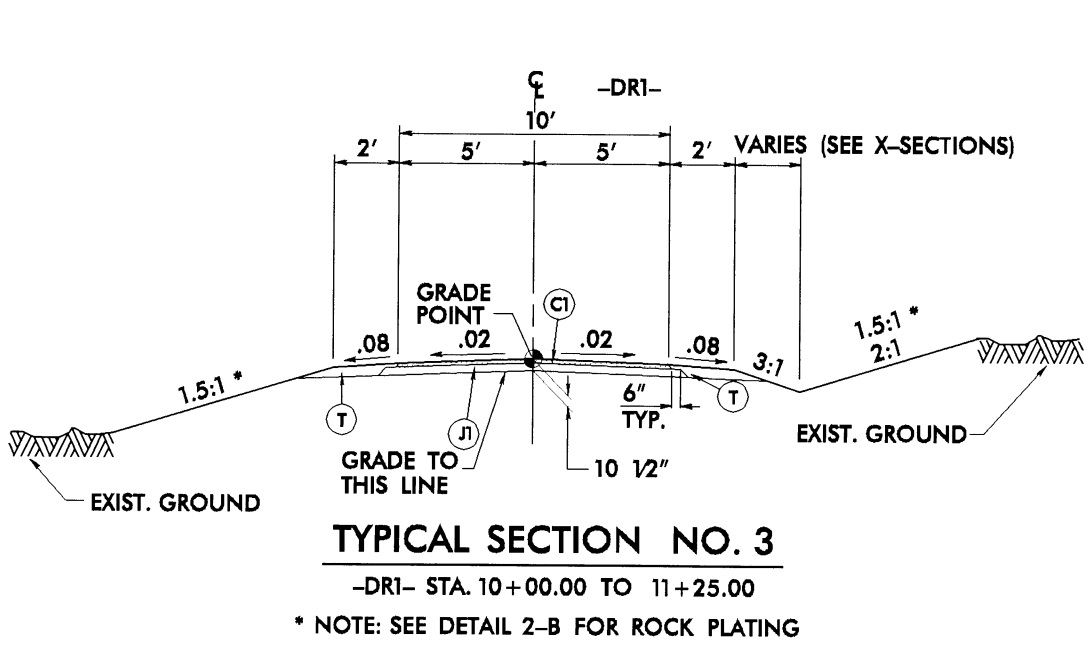
NOTE: All Pavement Edge Slopes Are To Be 1:1.



PROJECT REFERENCE NO.	SHEET NO.
B-3300	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



USE TYPICAL SECTION No. 2
-L- STA. 18+15.85 (End Approach Slab) TO 22+00.00



PLANS PREPARED BY :
 RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
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RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

SR 131	2200	3600
NC 88	880	1330
8430	1400	2200
14200	110	200
2004 ADT	310	SR 1508
2025 ADT	400	

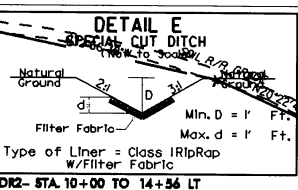
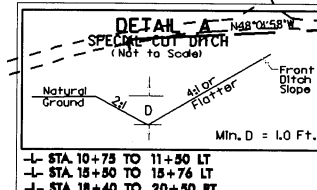
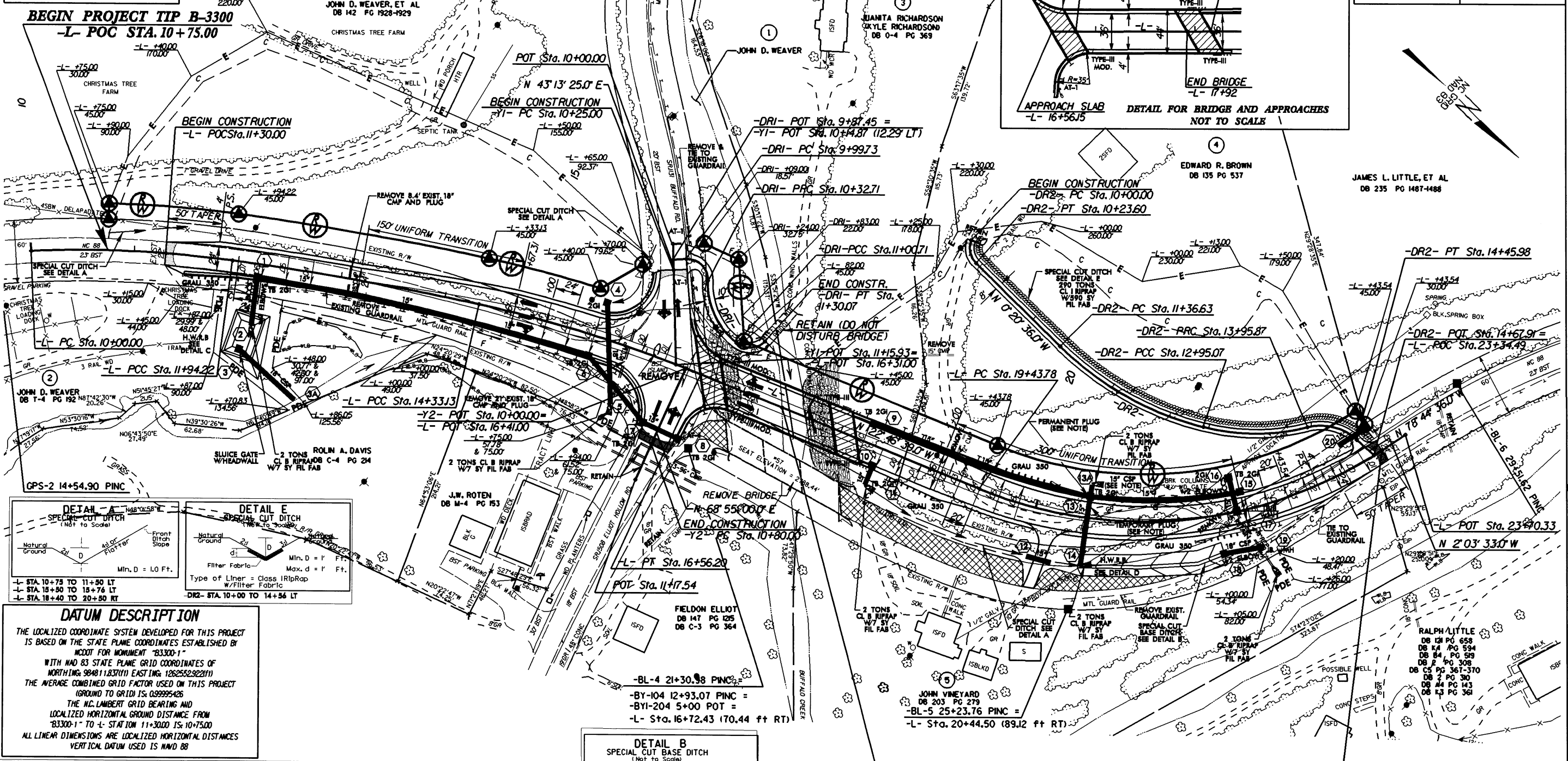
PROJECTED TRAFFIC VOLUMES

PI Sta 10+97.36	PI Sta 13+137.4	PI Sta 15+44.95	PI Sta 21+61.23
$\Delta = 10' 11" 46.7' (RT)$	$\Delta = 4' 46" 42.0' (RT)$	$\Delta = 10' 02' 17.3' (RT)$	$\Delta = 55' 57' 57.0' (LT)$
$D = 5' 15' 00.0'$	$D = 2' 00' 00.0'$	$D = 4' 30' 00.0'$	$D = 14' 00' 00.0' (36mph)$
$L = 194.22'$	$L = 223.92'$	$L = 223.07'$	$L = 399.76'$
$T = 97.36'$	$T = 119.53'$	$T = 111.82'$	$T = 217.45'$
$R = 1,091.35'$	$R = 2,864.79'$	$R = 1,273.24'$	$R = 409.26'$
SE = match exist.	SE = 0.04 ft/ft	SE = 0.04 ft/ft	SE = 0.06 ft/ft

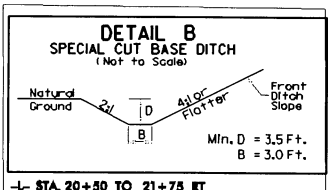
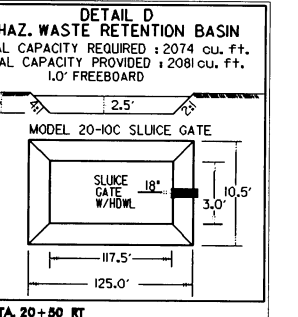
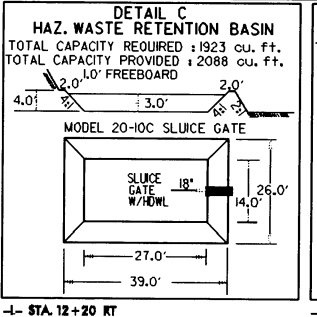
PI Sta 10+33.91	PI Sta 10+81.95	PI Sta 11+31.30
$\Delta = 94' 28' 18.4' (RT)$	$\Delta = 53' 22' 07.2' (LT)$	$\Delta = 84' 06' 34.0' (LT)$
$D = 296' 28' 44.0'$	$D = 78' 29' 14.5'$	$D = 296' 28' 44.0'$
$L = 32.98'$	$L = 68.00'$	$L = 29.36'$
$T = 21.63'$	$T = 36.69'$	$T = 18.04'$
$R = 20.00'$	$R = 73.00'$	$R = 20.00'$

NOTE: TEMPORARILY PLUG PROPOSED OUTFLOW PIPE INSIDE STRUCTURE 13 AND PLACE TEMPORARY PIPE 13A WHILE HAZARDOUS WASTE RETENTION BASIN IS BEING BUILT. PLUG TEMPORARY PIPE AFTER COMPLETION OF H.W.R.B.

PROJECT REFERENCE NO.	SHEET NO.
B-3300	4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	SEAL 23982
	SEAL 18181
	SEAL 23982
	SEAL 18181



DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDDOT FOR MONUMENT "B3300-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 984811.837(11) EASTING: 1262552.922(11) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995426 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3300-1" TO STA 11+30.00 IS: 10+75.00 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS MVD 88



BEGIN APPROACH SLAB -L- STA. 16+56.15
BEGIN BRIDGE -L- STA. 16+80
END BRIDGE -L- STA. 17+92
END APPROACH SLAB -L- STA. 18+15.85

PI Sta 10+13.39	PI Sta 12+17.4	PI Sta 13+46.56	PI Sta 14+23.26
$\Delta = 67' 36' 24.2' (LT)$	$\Delta = 30' 15' 35.8' (LT)$	$\Delta = 28' 52' 38.7' (LT)$	$\Delta = 57' 25' 17.5' (RT)$
$D = 286' 28' 44.0'$	$D = 19' 05' 54.9'$	$D = 28' 38' 52.4'$	$D = 114' 35' 29.6'$
$L = 23.60'$	$L = 158.44'$	$L = 50.10'$	$L = 50.10'$
$T = 13.39'$	$T = 81.1'$	$T = 51.50'$	$T = 27.39'$
$R = 20.00'$	$R = 300.00'$	$R = 200.00'$	$R = 50.00'$



NOTE: SEE SHEET 2-B FOR ROCK PLATING DETAIL
SEE SHEET 2-H FOR INTERSECTION AND SHOULDER BERM GUTTER DETAIL
SEE SHEET 3-B FOR SHOULDER BERM GUTTER SUMMARY
SEE SHEET 5 FOR PROFILES

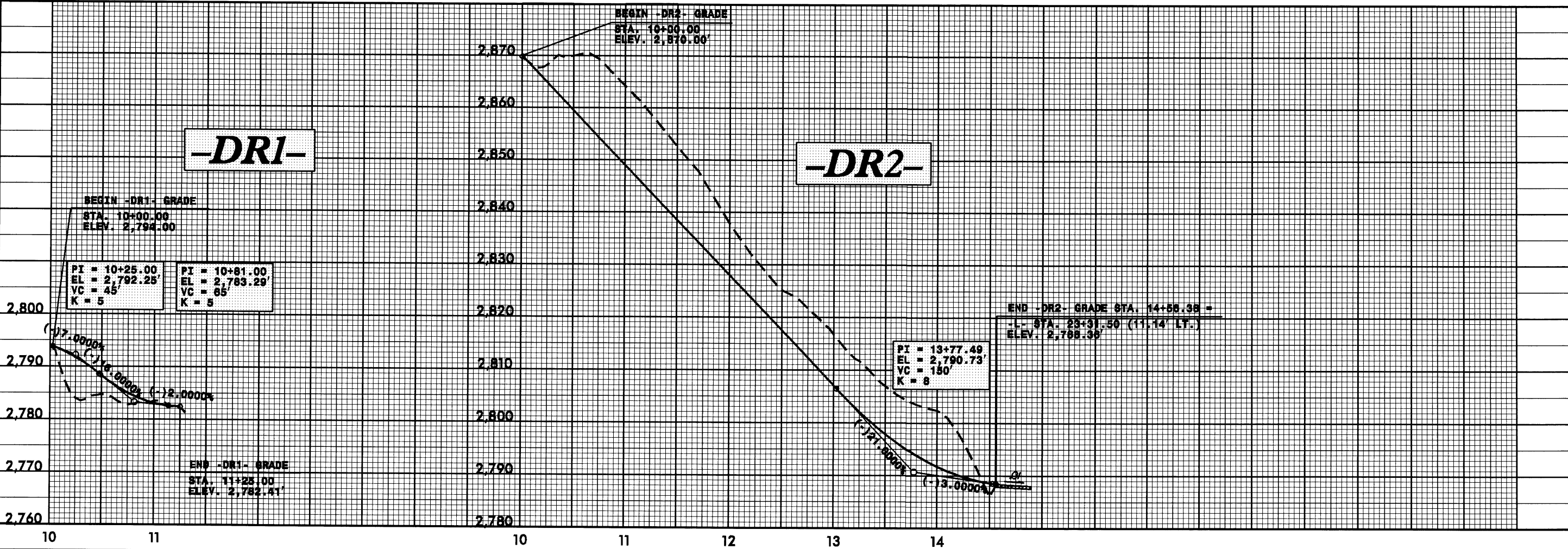
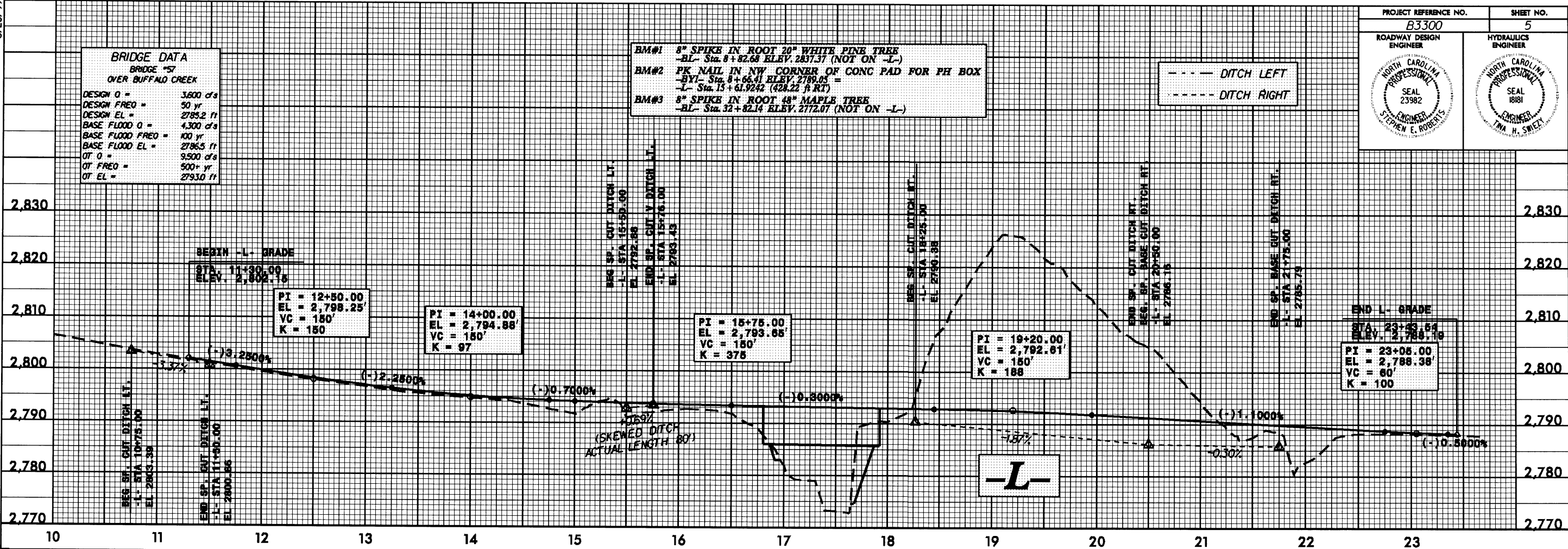
PLANS PREPARED BY:
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consulting engineers
5800 FARMINGTON PLACE SUITE 105
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS

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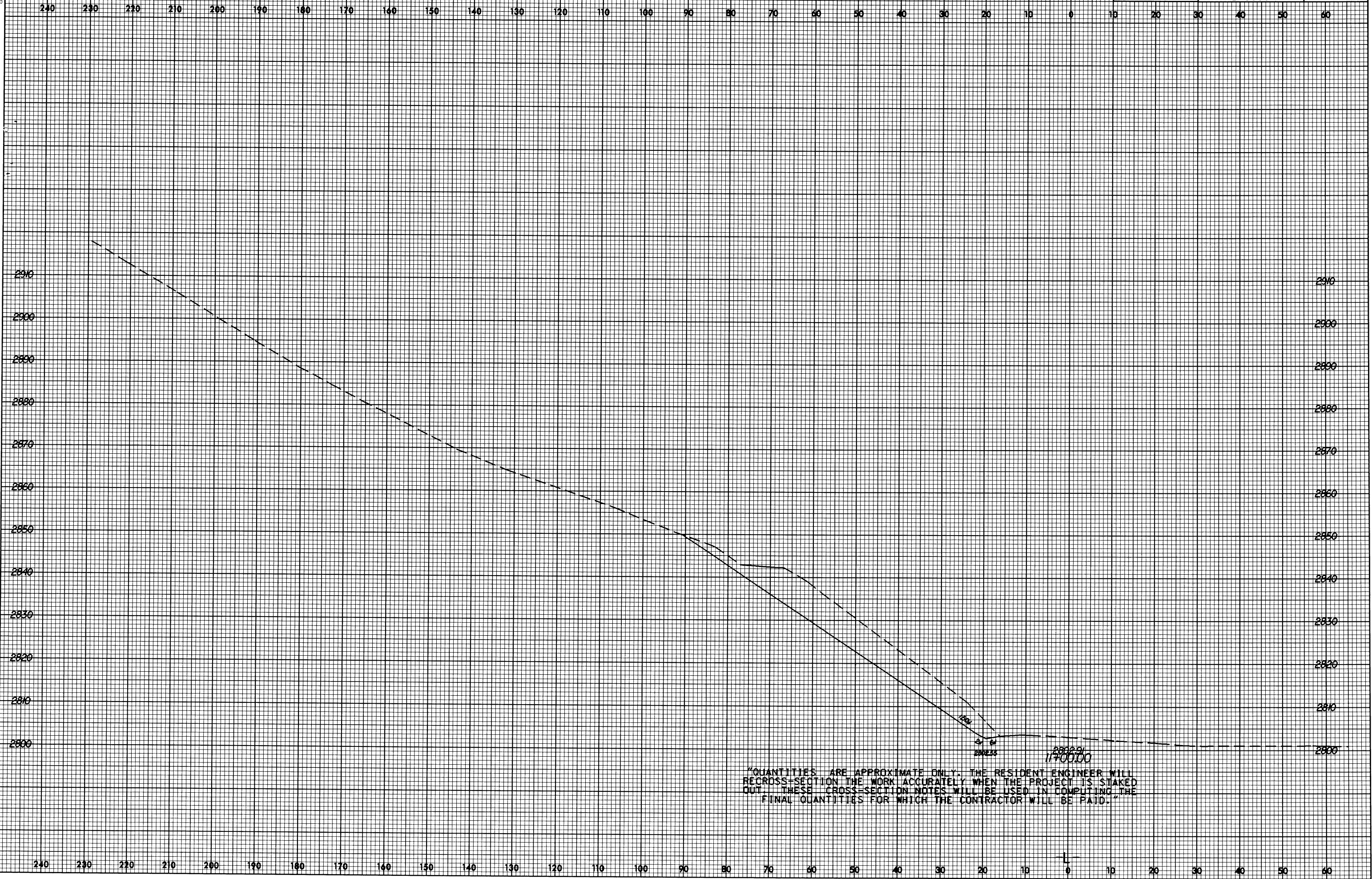
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OVER BUFFALO CREEK	
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DESIGN FREQ =	50 yr
DESIGN EL =	2785.2 ft
BASE FLOOD Q =	4,300 cfs
BASE FLOOD FREQ =	100 yr
BASE FLOOD EL =	2786.5 ft
OT Q =	9,500 cfs
OT FREQ =	500+ yr
OT EL =	2793.0 ft

BM#1 8" SPIKE IN ROOT 20" WHITE PINE TREE
-BL- Sta. 8+82.68 ELEV. 2837.37 (NOT ON -L-)
BM#2 PK NAIL IN NW CORNER OF CONC PAD FOR FH BOX
-BY1- Sta. 8+66.41 ELEV. 2789.05 =
-L- Sta. 13+61.9242 (428.22 ft RT)
BM#3 8" SPIKE IN ROOT 48" MAPLE TREE
-BL- Sta. 32+82.14 ELEV. 2772.07 (NOT ON -L-)

PROJECT REFERENCE NO. B3300	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	



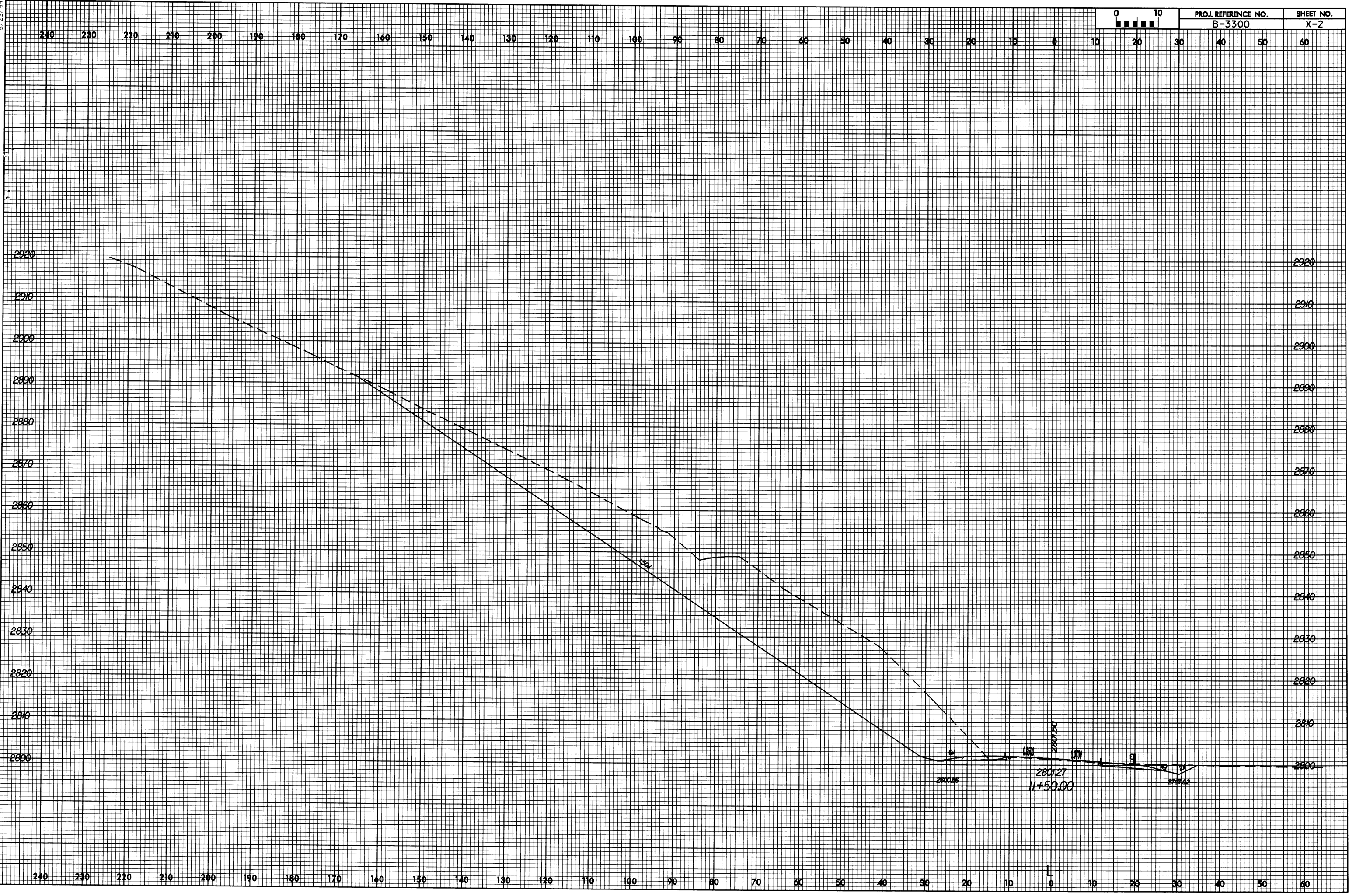
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"QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL RE-CROSS-SECTION THE WORK ACCURATELY WHEN THE PROJECT IS STAKED OUT. THESE CROSS-SECTION NOTES WILL BE USED IN COMPUTING THE FINAL QUANTITIES FOR WHICH THE CONTRACTOR WILL BE PAID."

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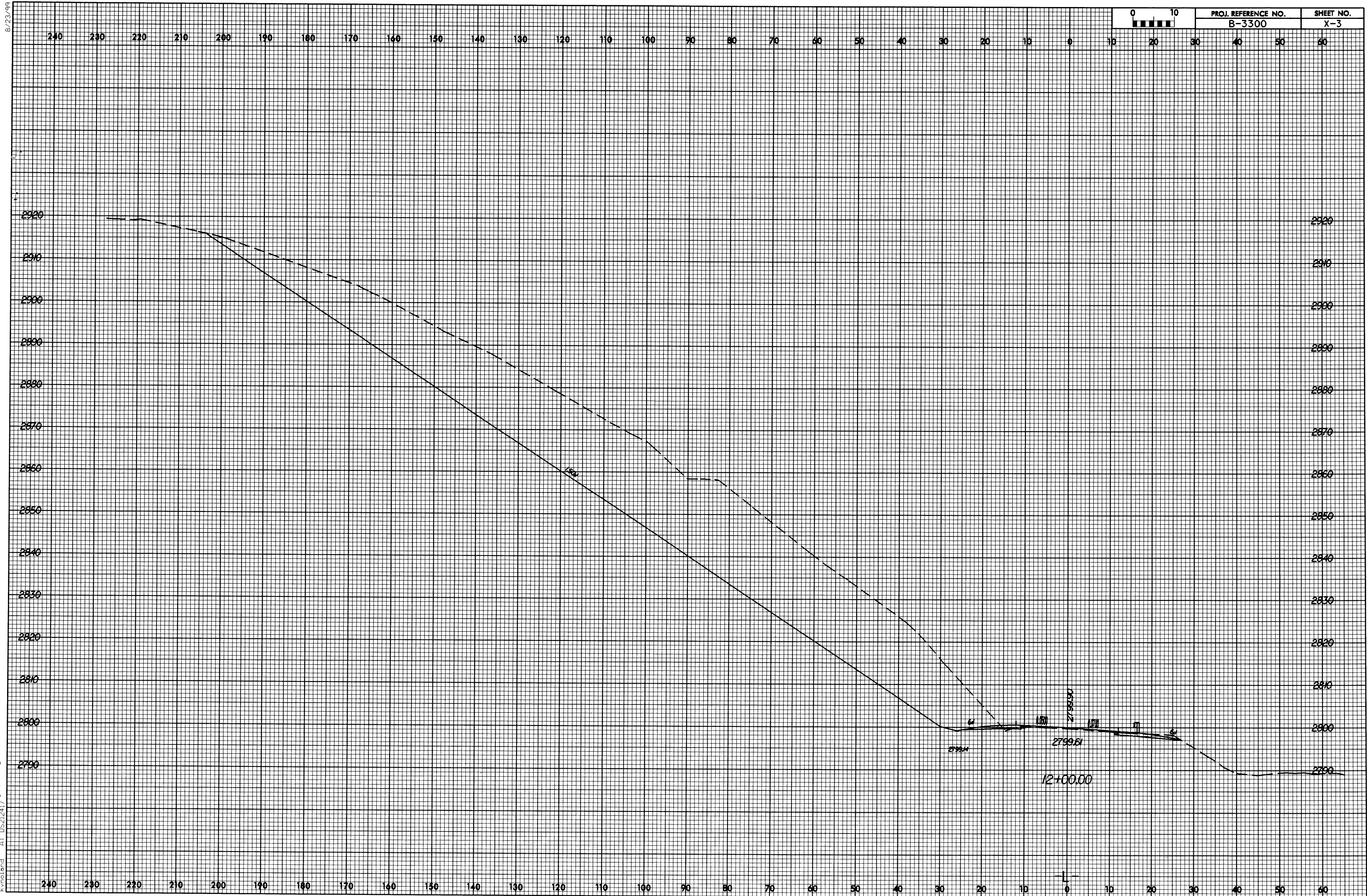
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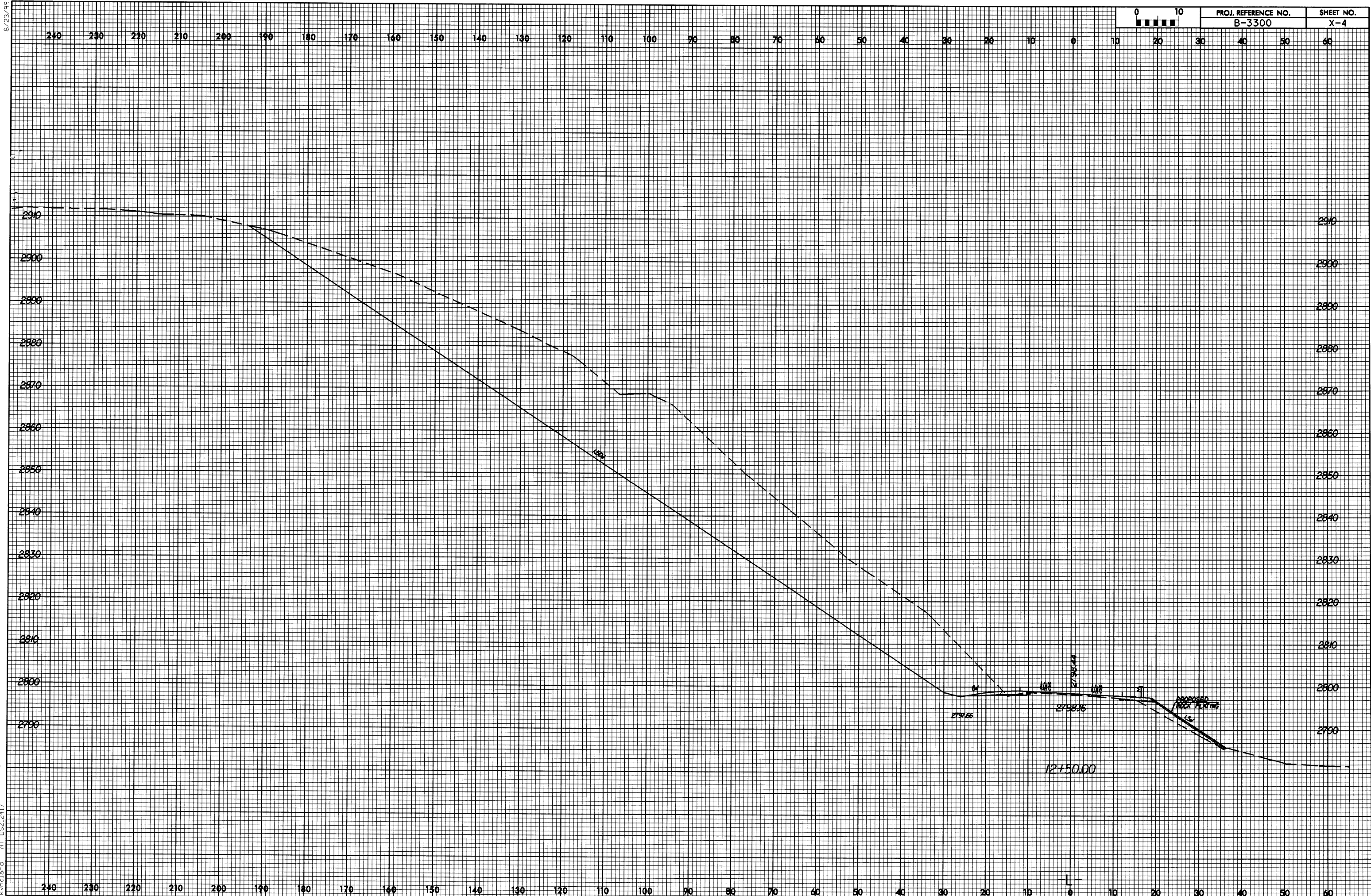
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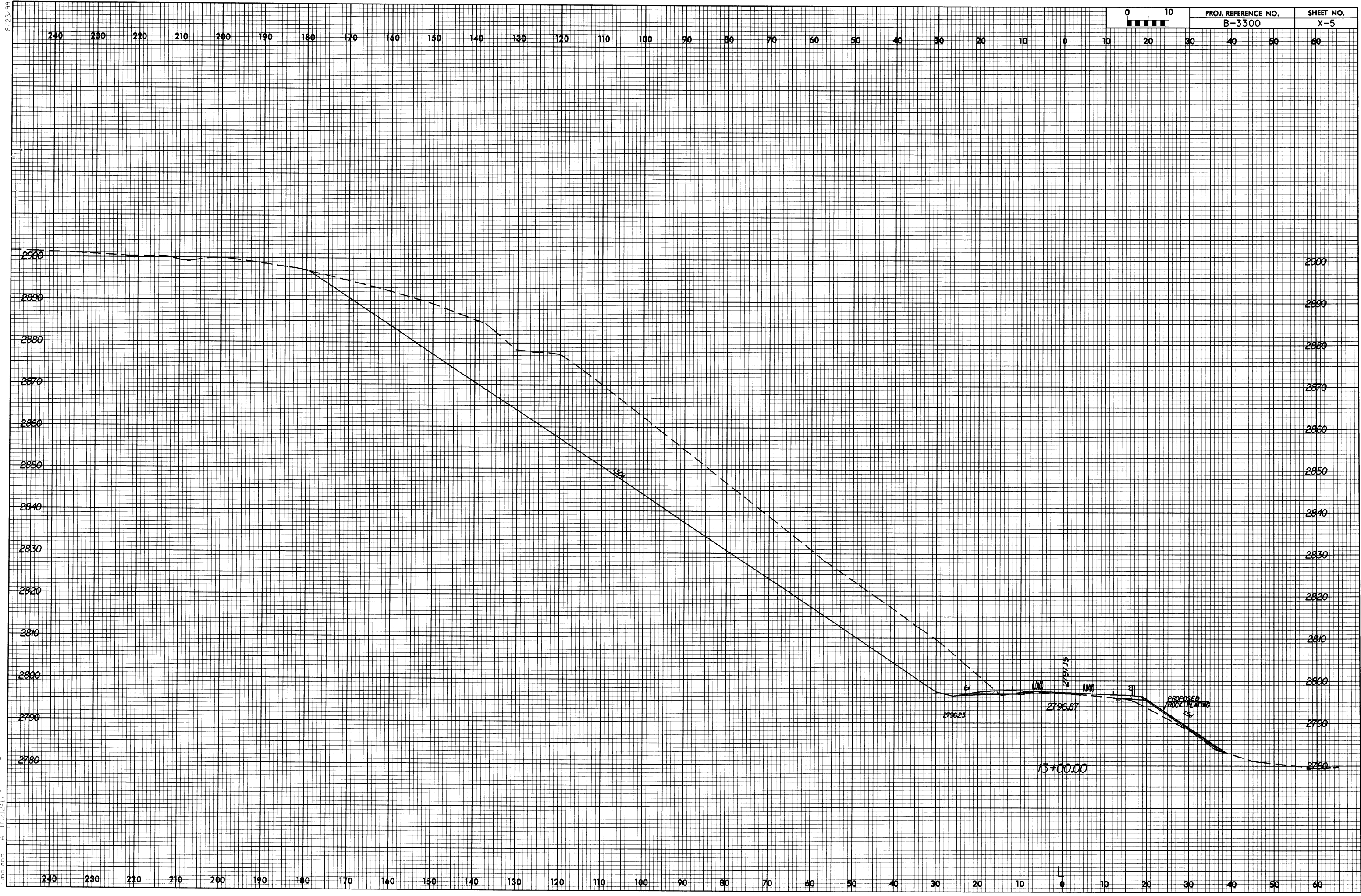


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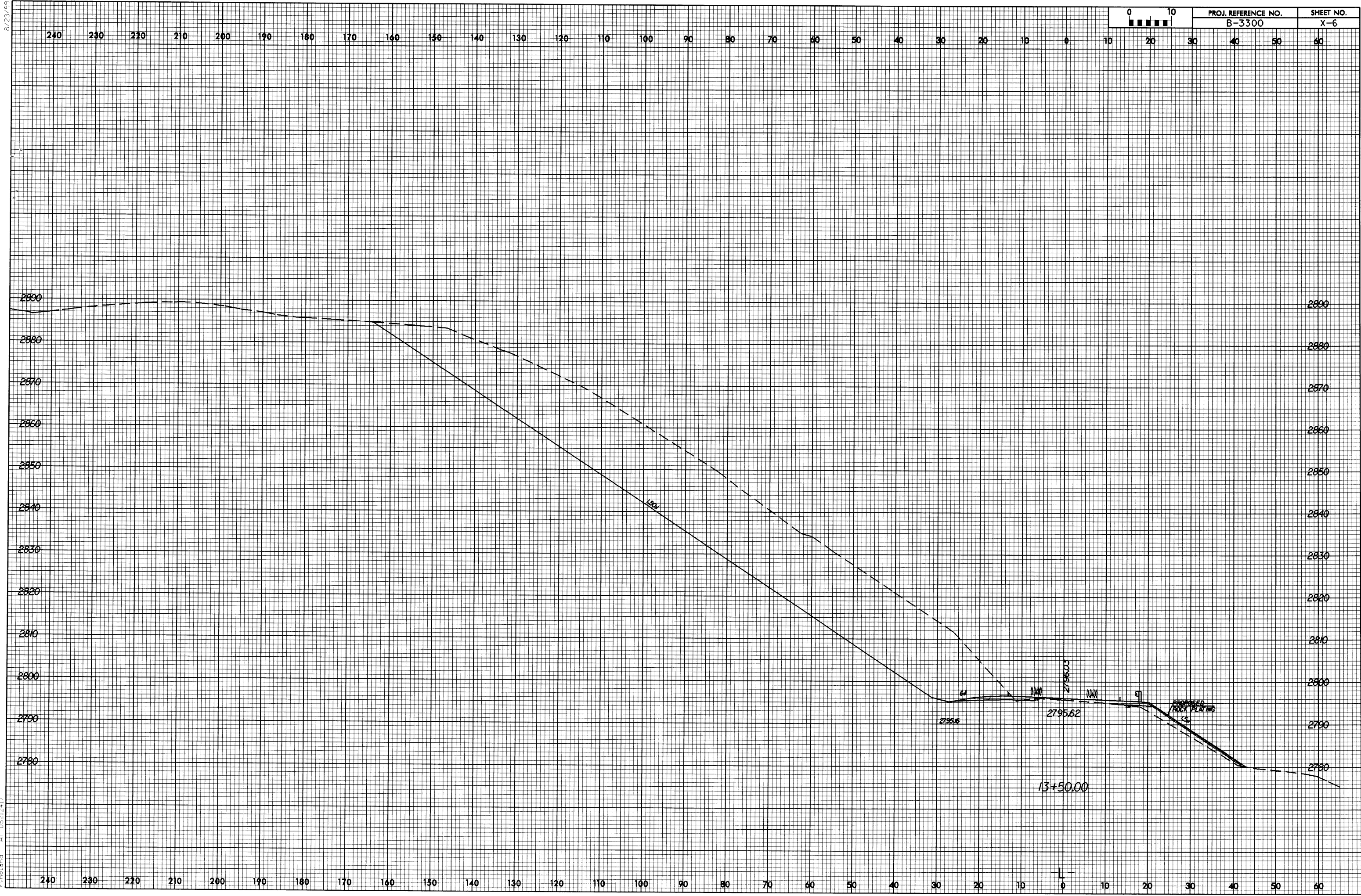
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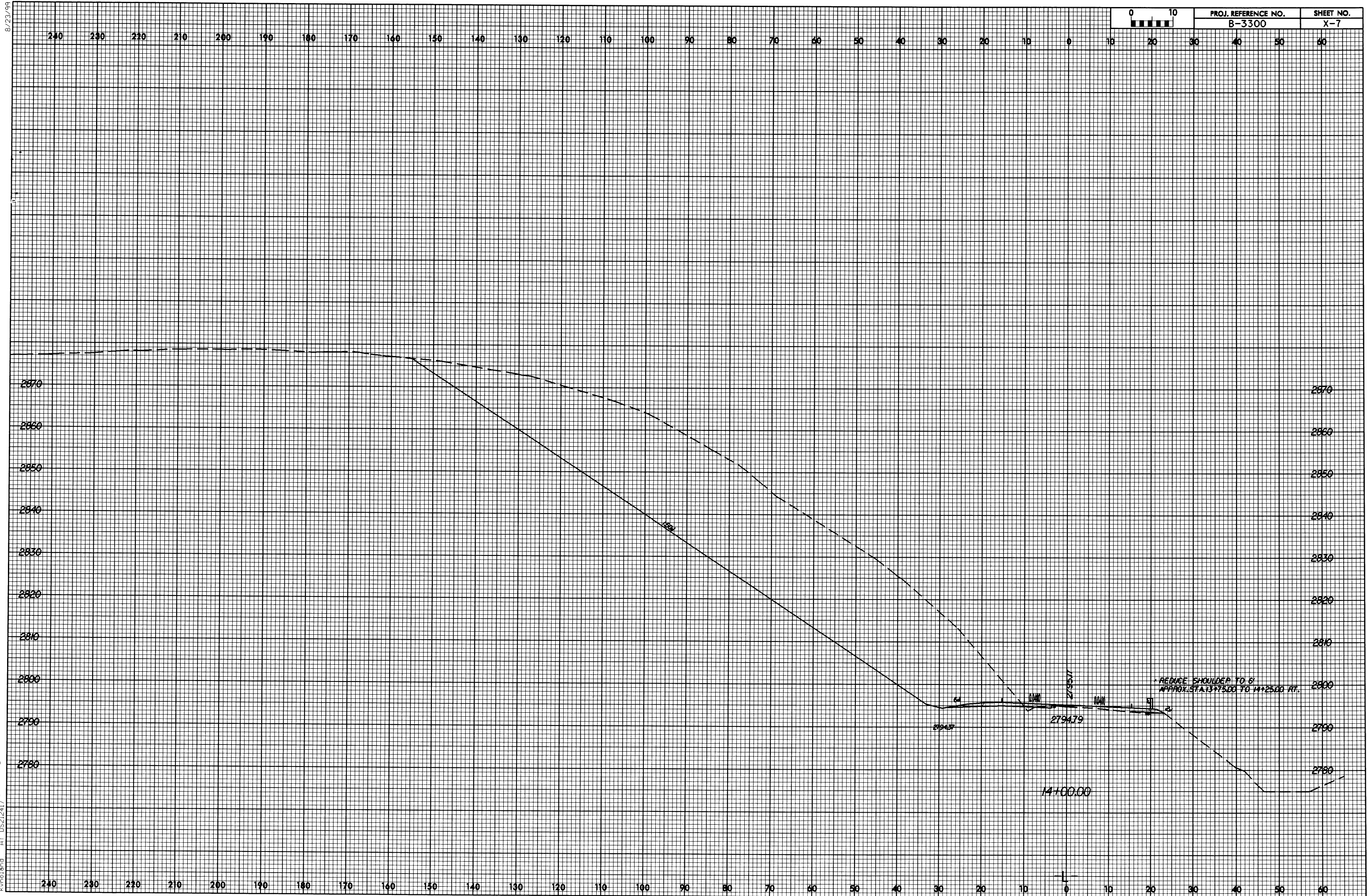


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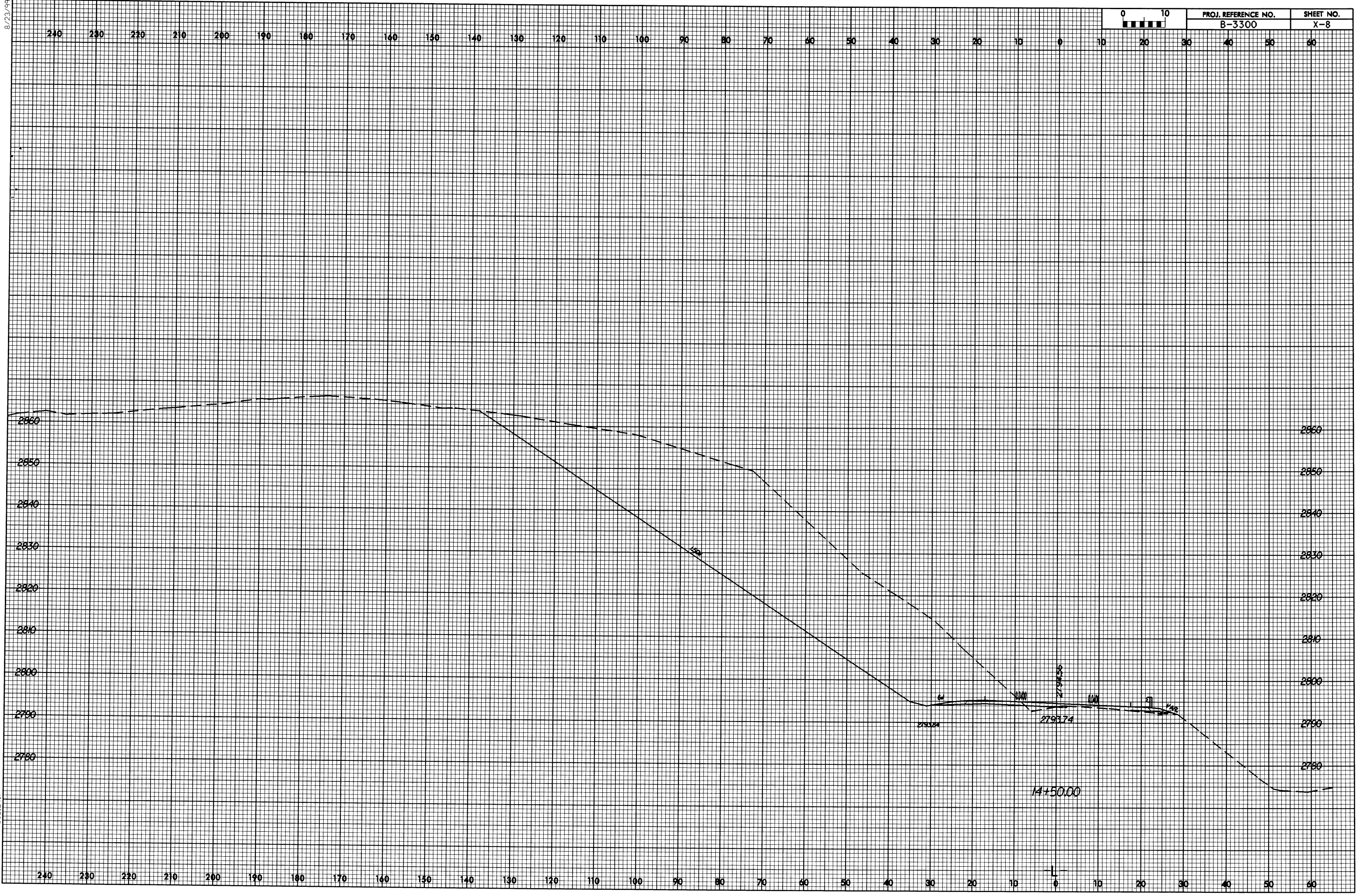
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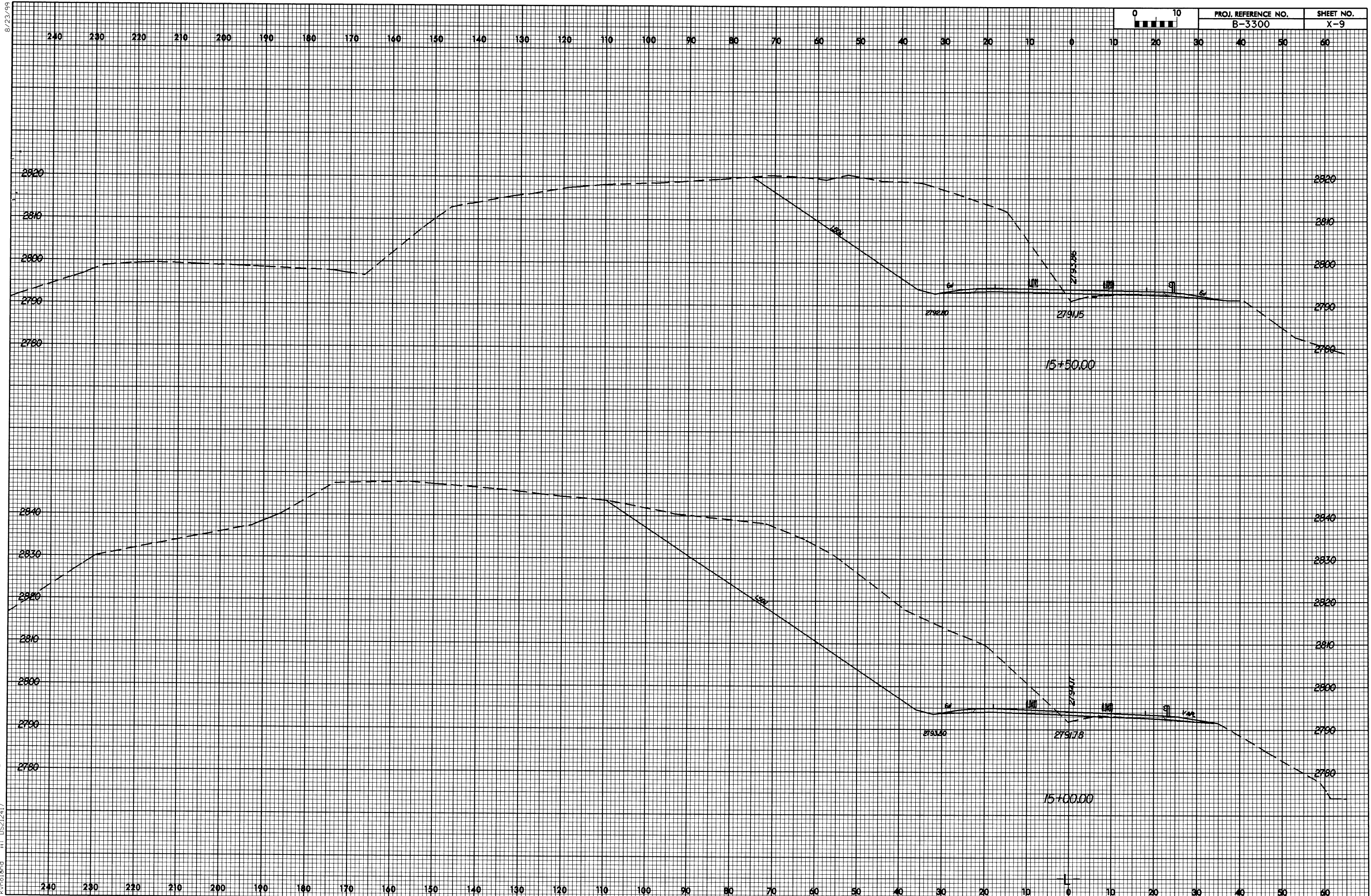




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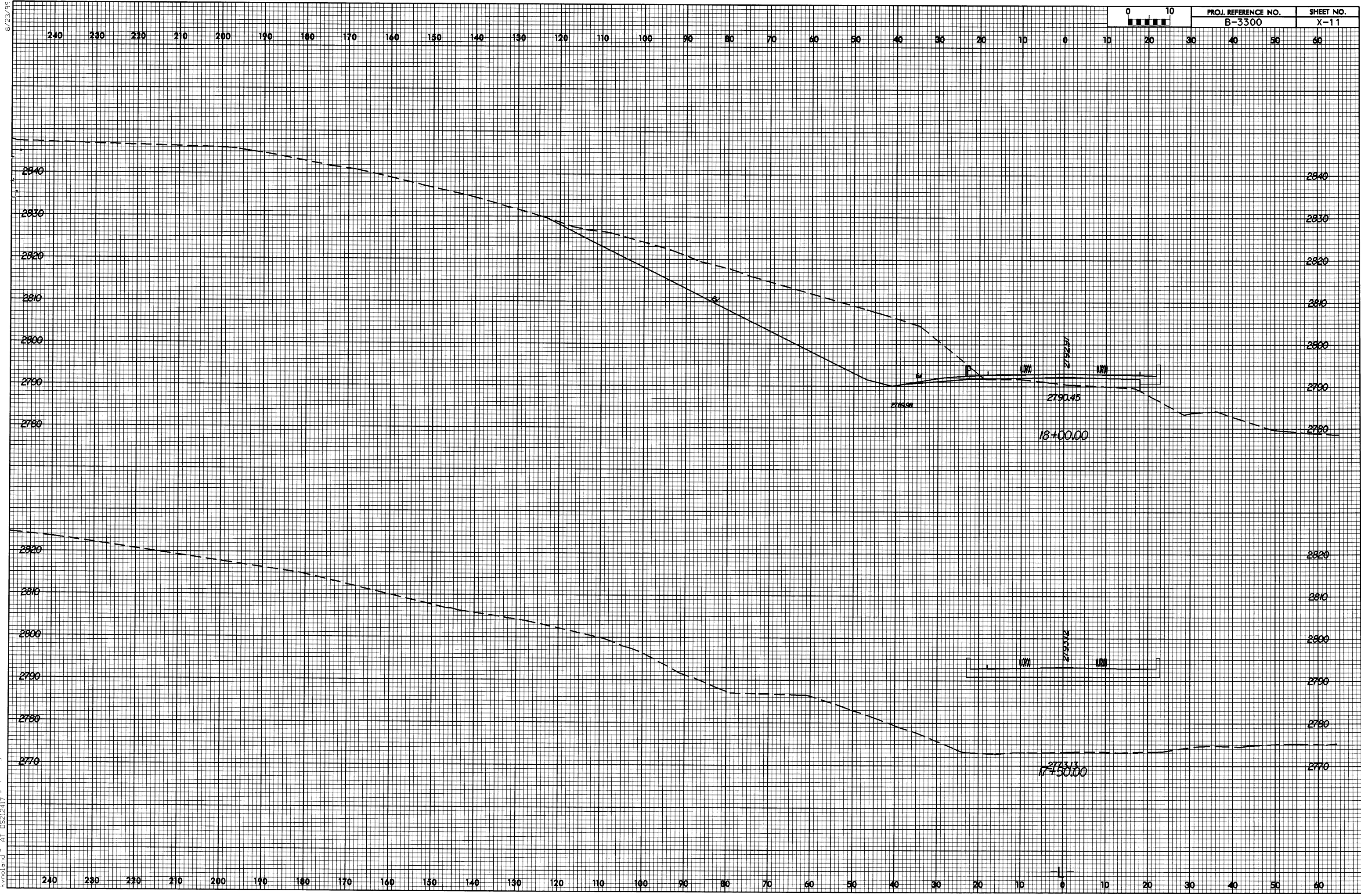
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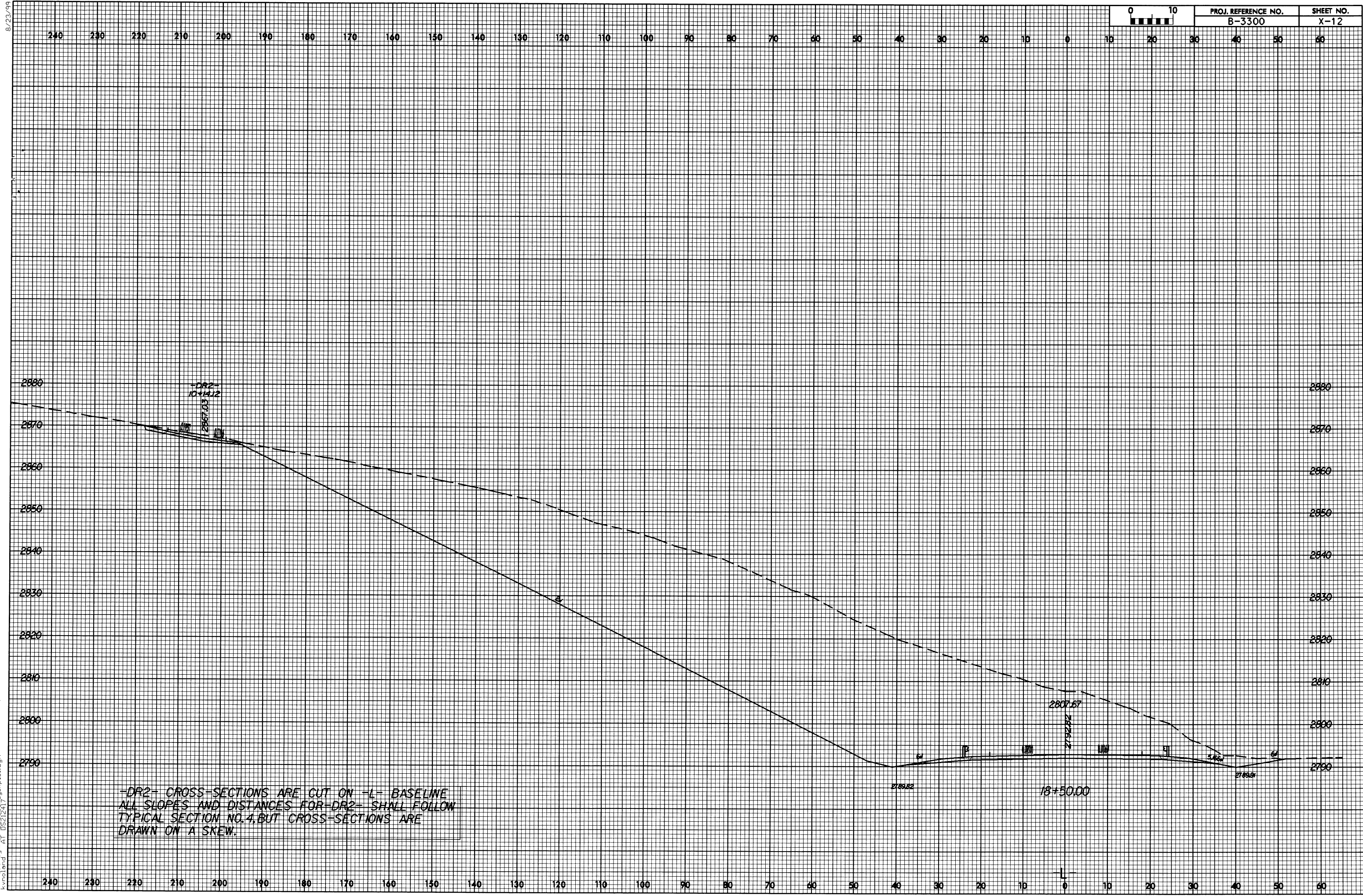


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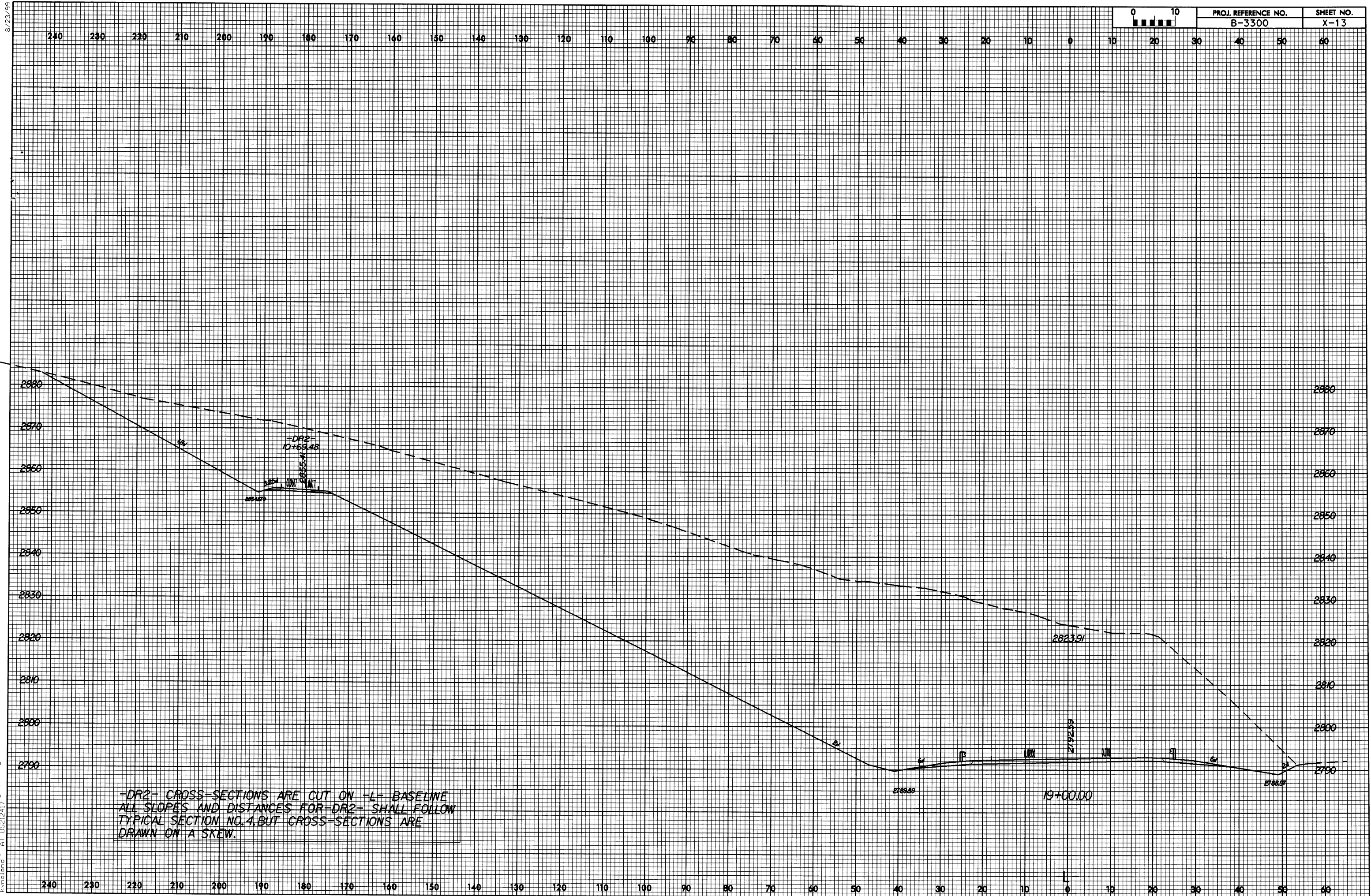
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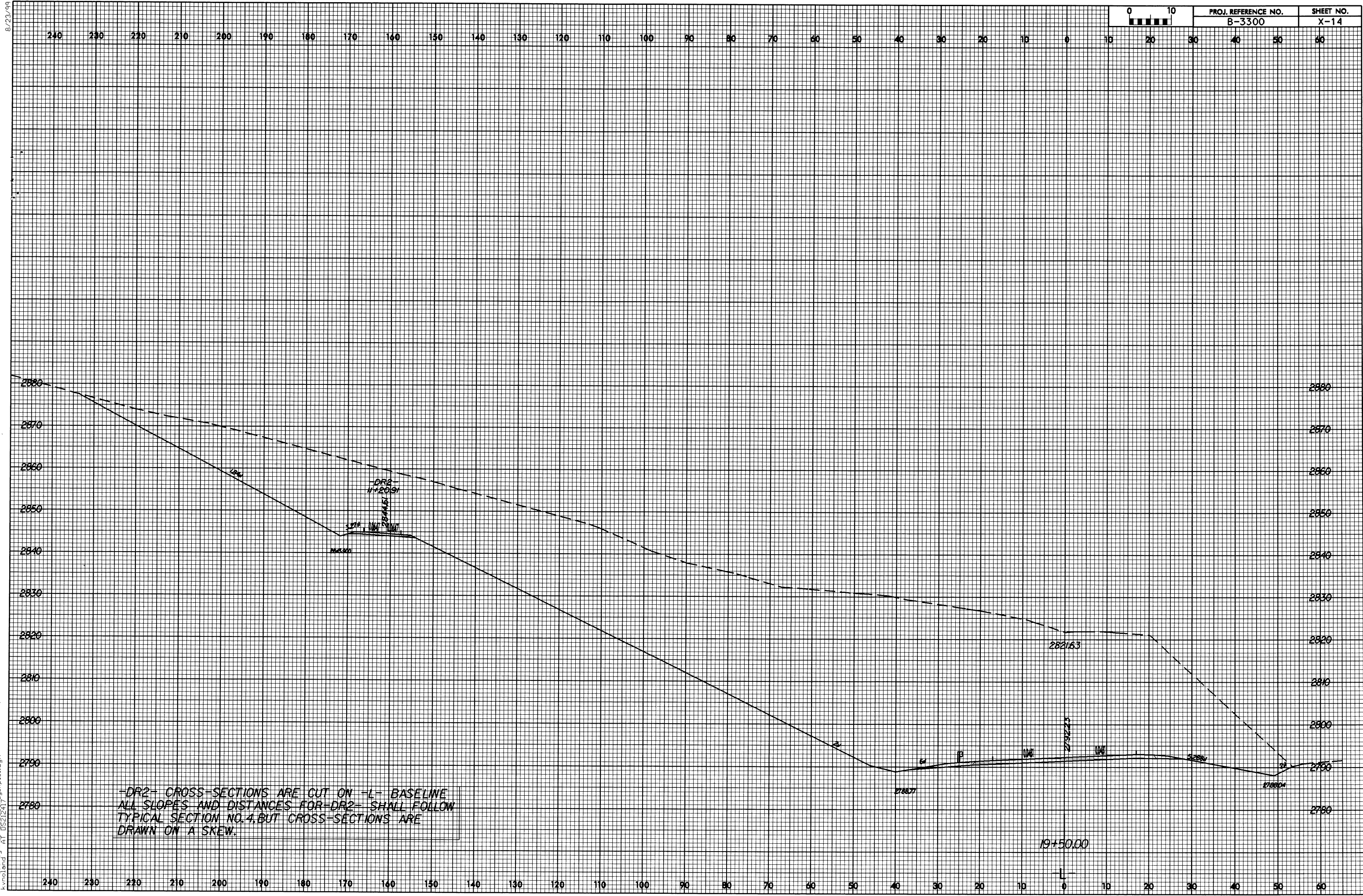
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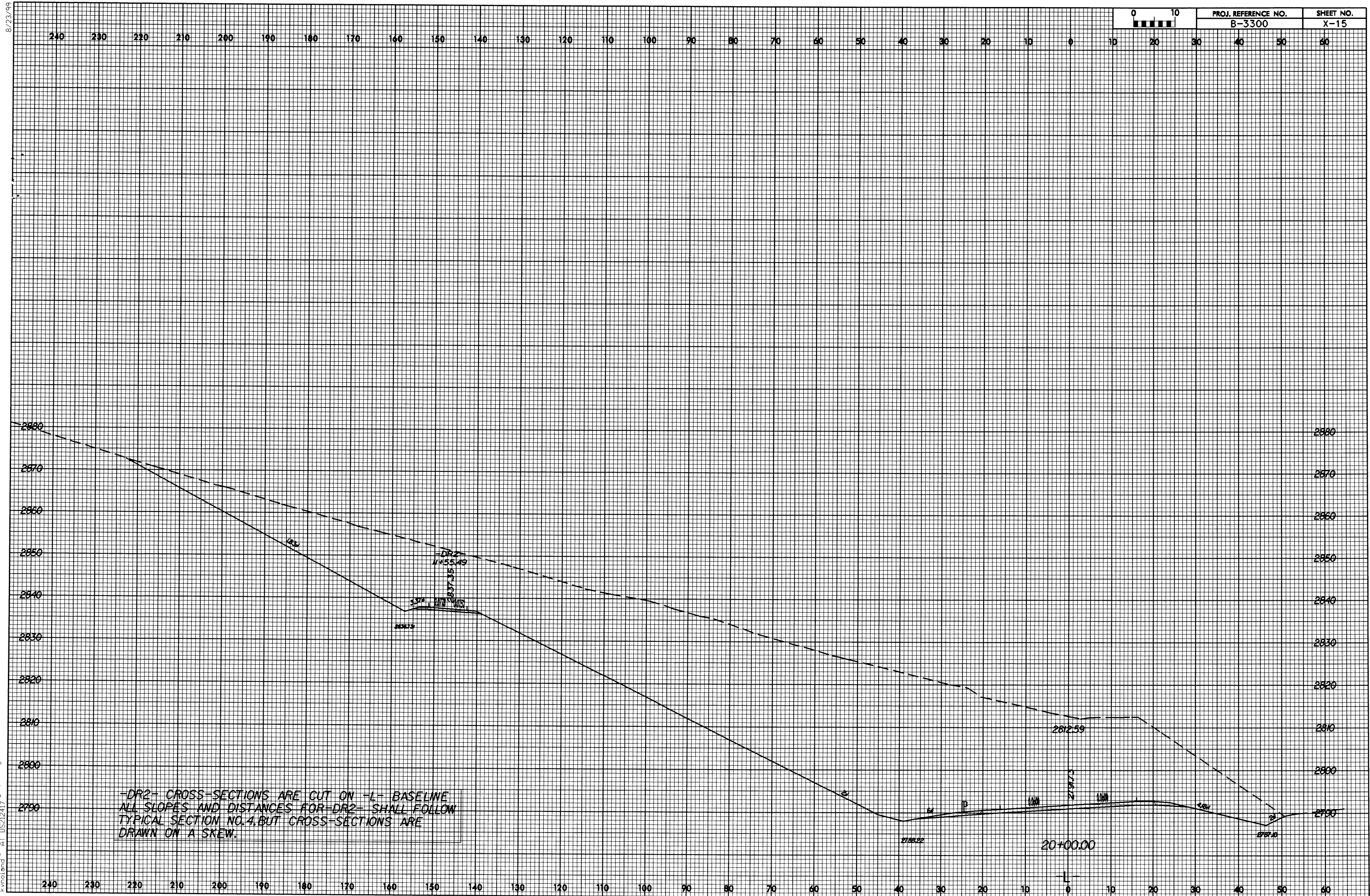
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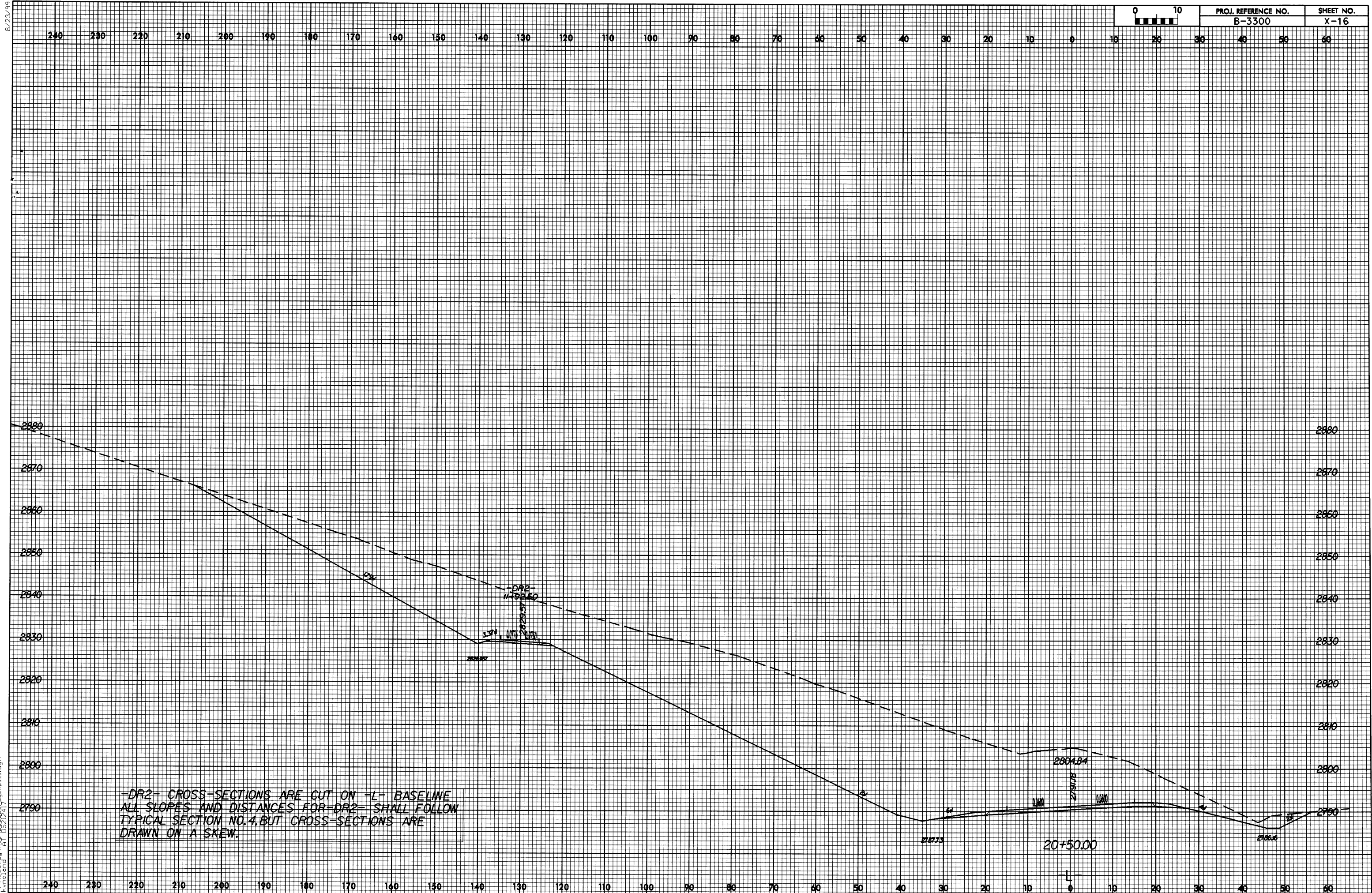


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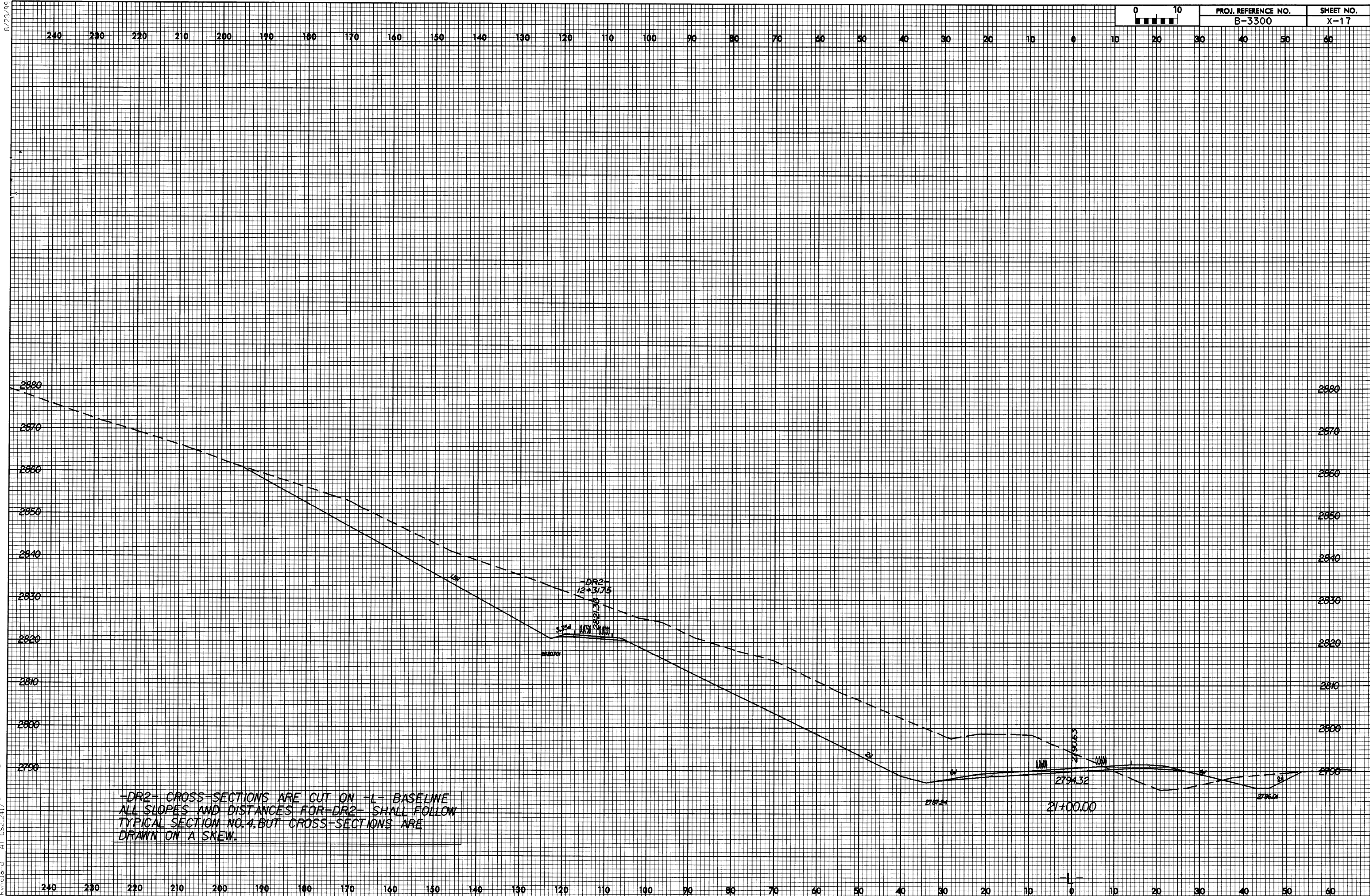
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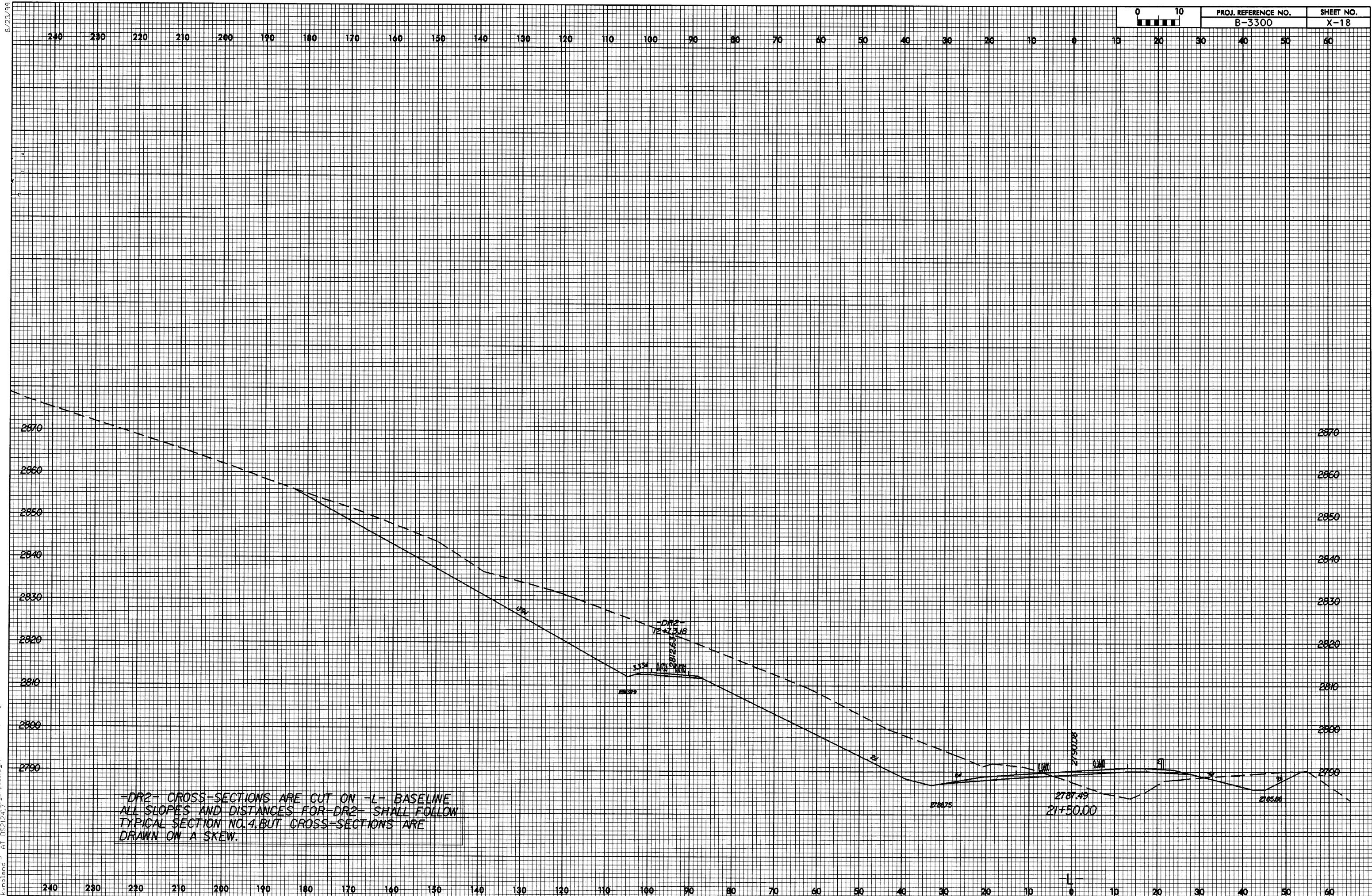
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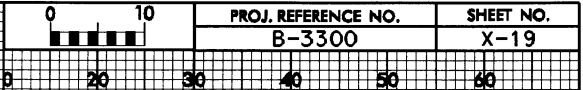


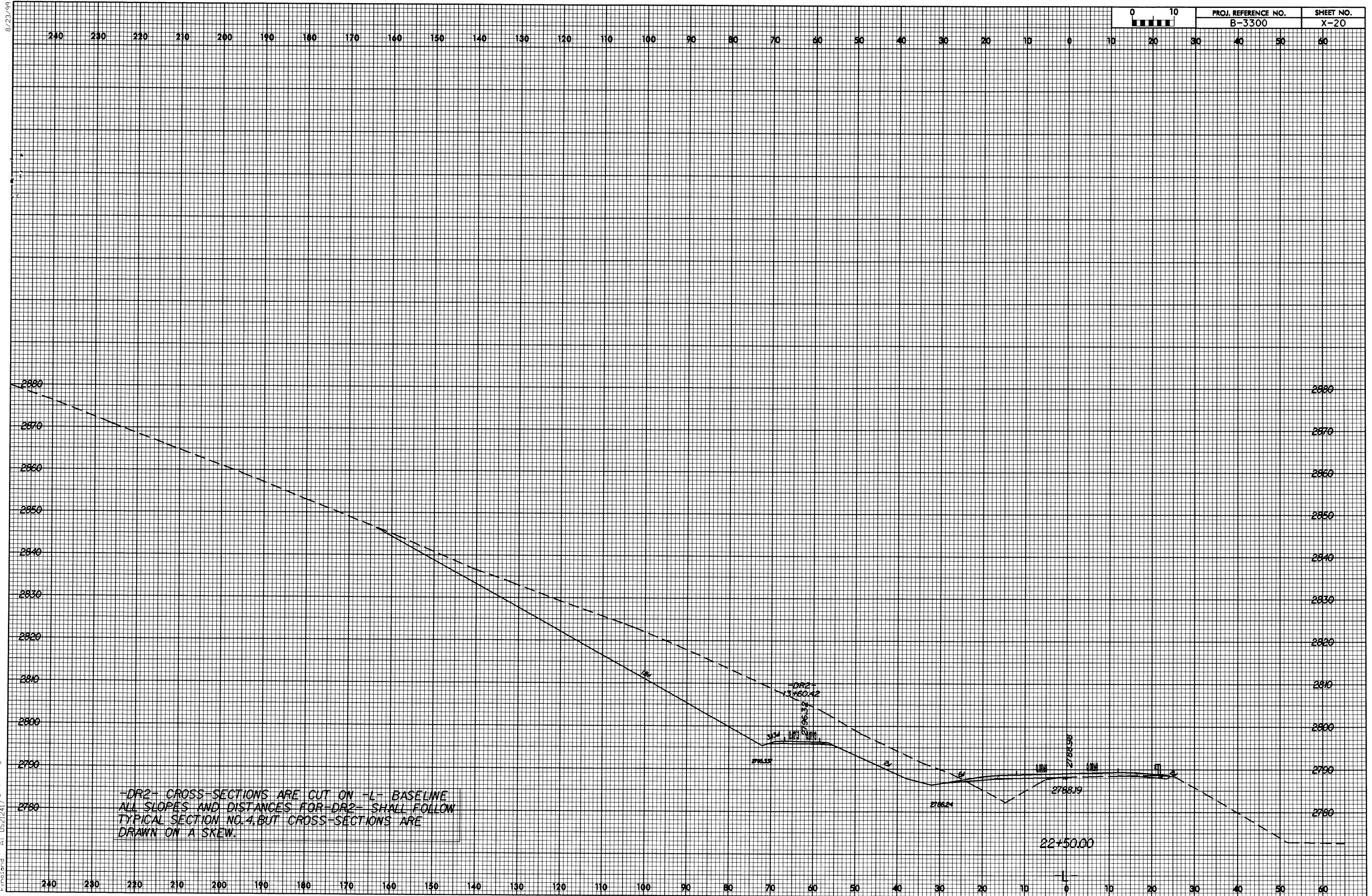
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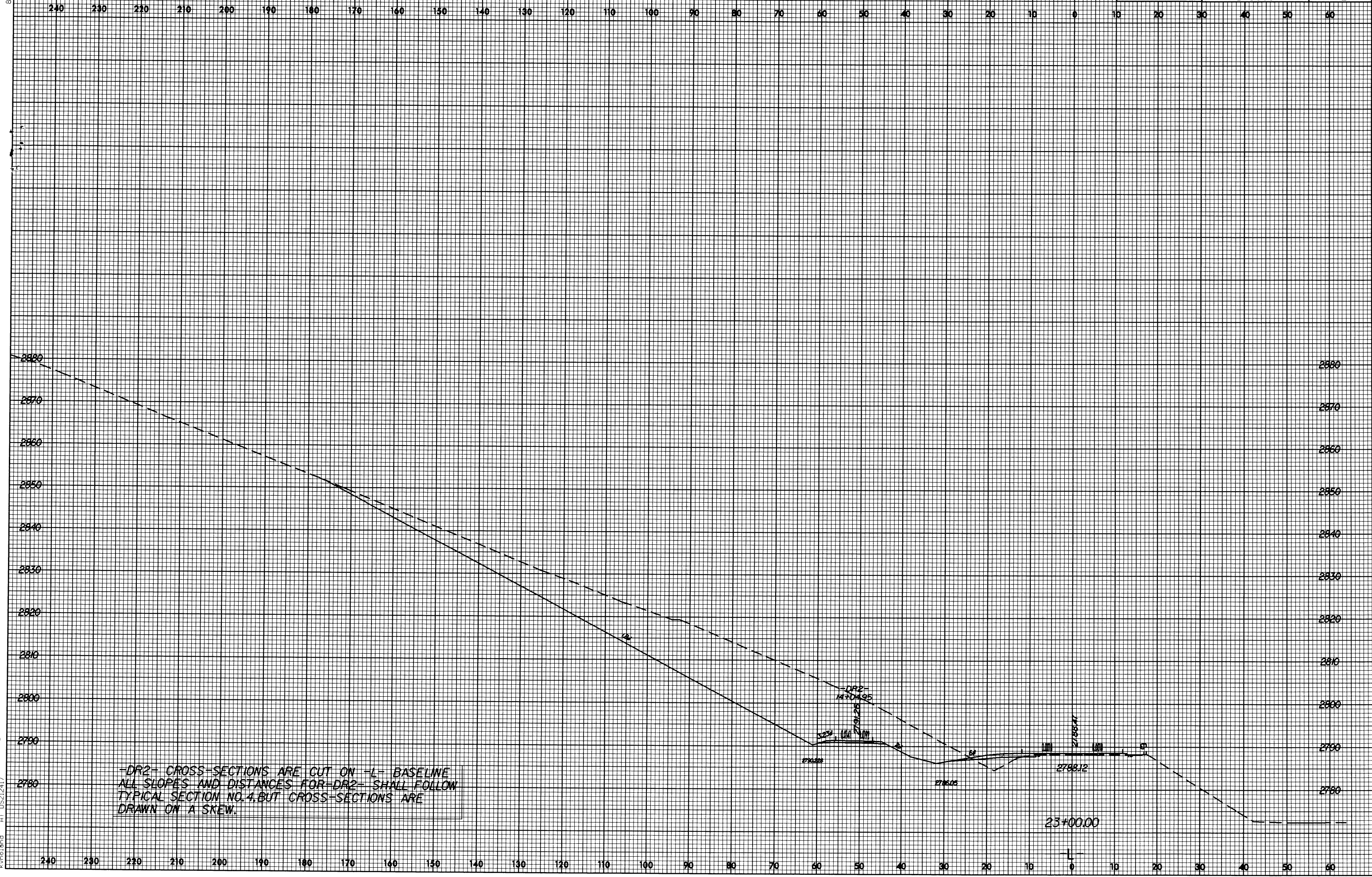






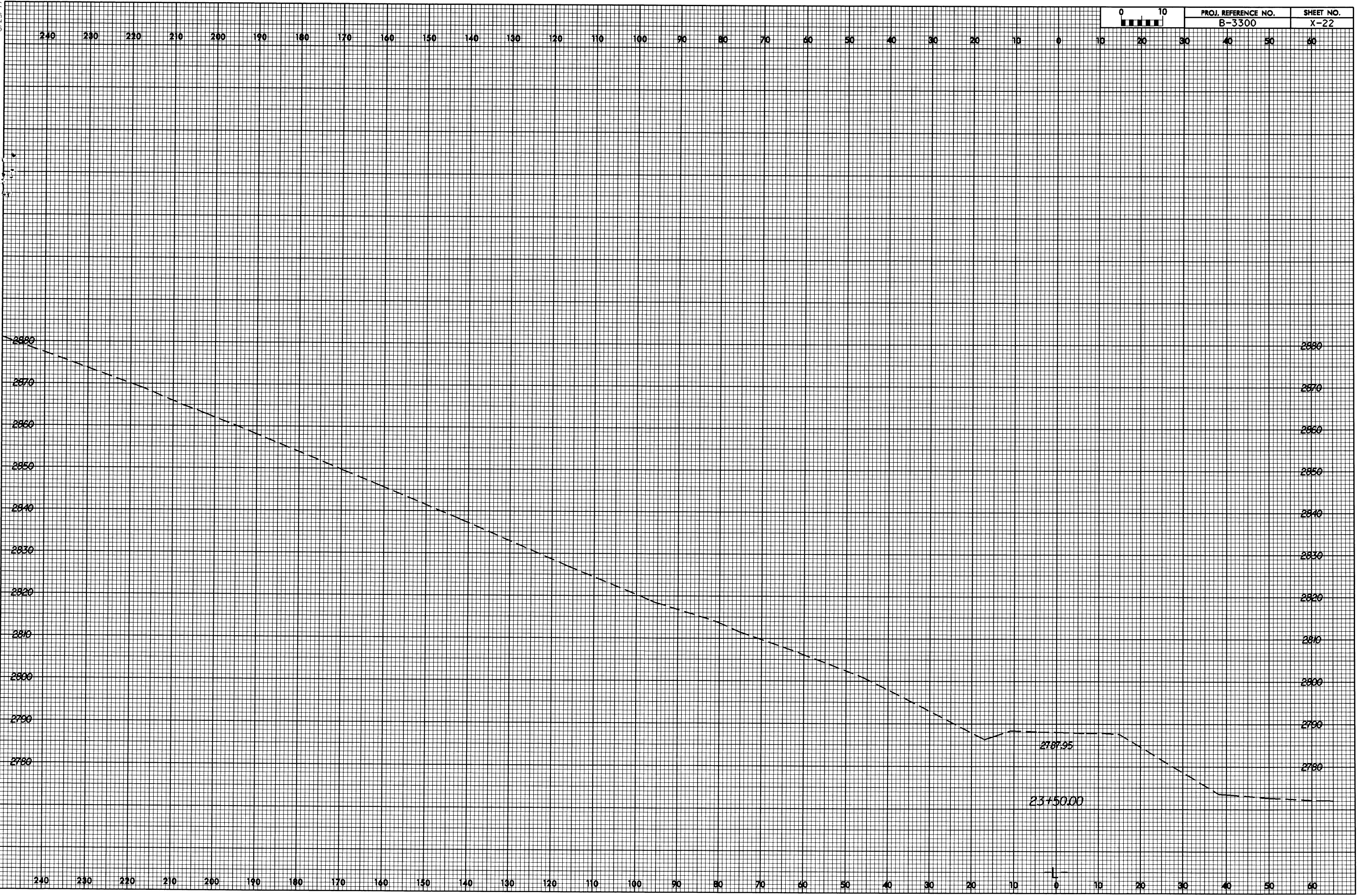


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Ashe County
Bridge No. 57 on NC 88
Over Buffalo Creek
Federal Aid Project No. BRSTP-88 (1)
State Project No. 8.1711301
T.I.P. No. B-3300

CATEGORICAL EXCLUSION
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROVED:

October 30, 2002
DATE

Jeresa Hart
for Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation

October 30, 2002
DATE

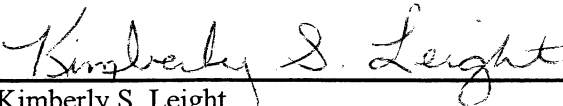
Th. D. Rigg
for Nicholas L. Graf, P.E.
Division Administrator
Federal Highway Administration

Ashe County
Bridge No. 57 on NC 88
Over Buffalo Creek
Federal Aid Project No. BRSTP-88 (1)
State Project No. 8.1711301
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CATEGORICAL EXCLUSION


October 2002

Document Prepared By:
Rummel, Klepper & Kahl, LLP



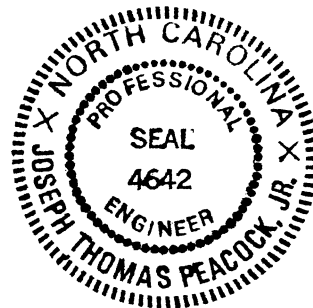
Kimberly S. Leight

Project Manager



J. T. Peacock, Jr., P.E.

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For the North Carolina Department of Transportation



Robert Andrew Joyner, P.E.

Project Manager

Consultant Engineering Unit

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PROJECT COMMITMENTS

Ashe County
Bridge No. 57 on NC 88
Over Buffalo Creek
Federal Aid Project No. BRSTP-88 (1)
State Project No. 8.1711301
T.I.P. No. B-3300

DESIGN SERVICES UNIT, DIVISION 11

- North Carolina Wildlife Resources Commission (NCWRC) has prohibited any in-stream work and land disturbance activities within the 25-foot buffer zone during trout spawning season of October 15 through April 15.

Ashe County
Bridge No. 57 on NC 88
Over Buffalo Creek
Federal Aid Project No. BRSTP-88 (1)
State Project No. 8.1711301
T.I.P. No. B-3300

INTRODUCTION: The replacement of Bridge No. 57 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and in the Federal Aid Bridge Replacement Program. The location of this bridge is shown on Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal “Categorical Exclusion”.

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 41.5 out of a possible 100 for a new structure. It was last inspected in May 1998. This bridge is considered functionally obsolete and structurally deficient. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The project is located in Ashe County on NC 88, approximately 50 feet [15.2 meter (m)] north of the junction of SR 1131 (Buffalo Road) and SR 1508 (Elliott Road). The local area surrounding the proposed project is characterized as rolling to steep mountainous terrain. The project vicinity consists of a floodplain forest, residential areas, mature forests and adjacent urbanized areas.

NC 88 is classified as a rural major collector in the Statewide Functional Classification System.

In the vicinity of the bridge, NC 88 is a 20-foot (6-m) paved 2-lane roadway. The roadway grade is relatively flat through the project area. The bridge crown to bed height is approximately 21 feet (6.4 m) above the riverbed at Bridge No. 57.

The current (2002) traffic volume of 8,300 vehicles per day (VPD) is expected to increase to 14,800 VPD by the year 2025. The project volume includes 1-percent truck-tractor semi-trailer (TTST)

and 3 percent dual-tired vehicles (DT). The posted speed limit in the project area is 45 miles per hour (mph) [70 kilometers per hour (km/h)].

There were 15 accidents reported in the vicinity of Bridge No. 57 during the 3-year period beginning January 1, 1998 through December 31, 2000. These figures resulted in a total accident rate of 454 accidents (ACC)/100 million vehicle miles (MVM).

Bridge No. 57 has three spans totaling 120.5 feet (36.7 m) with a clear roadway width of 26 feet (7.9 m). The bridge has an asphalt-wearing surface on a reinforced concrete floor supported by four lines of 30-inch [76.2-centimeter (cm)] steel I-beams. The substructure consists of abuts, reinforced concrete spill-throughs, interior bents, and reinforced concrete piles and beams. The weight limit on this bridge for single vehicles and tractor trailer/semi-trucks (TTSTs) is not posted. Bridge No. 57 was built in 1949 and is in poor condition. Photos of the existing bridge are shown in Figures 4a and 4b.

There are underground utilities and aerial telephone services along NC 88. Also, there are overhead power lines along NC 88 crossing Buffalo Creek at the bridge site. Overall, utility impacts are anticipated to be low and any specific impacts will be coordinated with appropriate utility personnel during construction.

Twenty-eight school buses cross Bridge No. 57 twice daily on their school routes. The transportation coordinator with Ashe County Schools stated that detouring school buses would greatly affect local traffic. The anticipated increase in school expenditures resulting from the detour route is \$51,000, which covers only the increase in bus driver wages. The quickest detour has an estimated travel time of 35 minutes. Due to the extensiveness of the detour, Alternative 1 is not feasible for school bus transportation (see letter dated April 27, 2001 in Appendix).

According to the Ashe County Emergency Management Services, NC 88 is the only main highway linking the eastern and western portions of the county. Alternatives 2 or 3 would be preferred for emergency traffic purposes. Without an on-site detour, ambulance response times could be lengthened by 30 to 45 minutes at a minimum. An off-site detour would be entirely unacceptable.

There is an eight-foot (2.4-m) corrugated metal pipe (CMP) culvert located on SR 1508 (Elliott Road) approximately 40 feet (12.2 m) east of the intersection of SR 1131 (Buffalo Road) and NC 88. This culvert will not be impacted by the proposed project.

The NCDOT Rail Division anticipates no rail interaction on this project. No impacts are anticipated to the old railroad bed located east of the proposed project.

III. ALTERNATIVES

A. Project Description

The replacement structure alternates will consist of three-span bridges approximately 115 to 140 feet (35.1 to 42.7 m) long and 44 feet (13.4 m) wide. The replacement structure will require standard spill-through abutments on each end. This structure will provide two 12-foot (3.6-m) lanes, a 12-foot (3.6-m) turning lane, and 4-foot (1.2-m) shoulders on each side. The proposed approach roadway will consist of a 24-foot (7.2-m) pavement width to provide two 12-foot (3.6-m) lanes with 8-foot (2.4-m) [4-foot (1.2-m) paved] shoulders on each side (See Figure 3a).

The recommended bridge length is based on a preliminary hydraulic review. The final design of the bridge will be such that the backwater elevation will not increase the current 100-year floodplain limit. The proposed roadway and structure should be placed at approximately the same elevation and have the same bridge opening to avoid affecting the floodplain and causing an increase in the backwater upstream of the proposed construction. All alternatives follow these general guidelines and are therefore acceptable. The new structure should satisfy economic constraints, improve existing conditions, accommodate design flows, and minimize environmental impacts on any sensitive natural ecosystems that may be in the vicinity of the project study area.

B. Build Alternatives

The alternatives studied for replacing Bridge No. 57 are shown on Figure 2 and described below:

Alternative 1 – replaces the bridge with a 138-foot (42-m) long bridge on the existing alignment. The approach work will extend from approximately 500 feet (152.4 m) south of the bridge to approximately 362 feet (110.3 m) north of the bridge for a total length of approximately 1,000 feet (304.8 m). The design speed is 50 mph (80 km/h). A design exception will not be necessary for this alternative. During the construction, traffic will be maintained on an off-site detour, which uses NC 194, SR 1514 (West Deep Ford Road), SR 1501 (Deep Ford Road), and SR 1573 (North Overpass Ramp Road) (See Figure 1). This alternative is not recommended because of the length of the off-site detour, which is approximately 16 miles (25.7 km).

Alternative 2 – replaces the bridge with a 138-foot (42 m) long bridge on the existing alignment. The approach work will extend from approximately 500 feet (152.4 m) south of the bridge to approximately 362 feet (110.3 m) north of the bridge for a total length of approximately 1,000 feet (304.8 m). The design speed is 50 mph (80 km/h). During construction, traffic will be maintained on a temporary detour structure located approximately 50 feet (15.2 m) west (upstream) of the existing bridge. The detour structure will be approximately 115 feet (35.1 m) long and 28 feet (8.4 m) wide. This structure will provide two 12-foot (3.6-m) lanes with 2-foot (0.6-m) shoulders (See Figure 3b). The approach work for the detour will extend from approximately 168 feet (51.2 m) south of the bridge to approximately 193 feet (58.8 m) north of the bridge for a total length of approximately 476 feet (145.1 m). The design speed for the detour is 40 mph (65 km/h). A design exception will be necessary for the horizontal curves on the detour alignment. This alternative is not recommended due to the horizontal curves necessary for minimizing impacts to adjacent properties.

Alternative 3 (Preferred) - replaces the bridge with a 115-foot (35-m) long bridge on a new location approximately 50 feet (15.2 m) west (upstream) of the existing structure. The existing Bridge No. 57 will be used to maintain traffic during the beginning of construction. The proposed bridge will have three lanes and will be constructed in stages (See Figure 3c). Staged construction is needed to provide adequate room for construction equipment. The first stage will include two 10-foot (3-m) lanes and one-foot (0.3-m) shoulders. Once stage one is complete, traffic can be shifted to the new bridge while stage two is completed. The new alignment will have a design speed of 50 mph (80 km/h). The approach work will extend from approximately 550 feet (167.6 m) south of the bridge to approximately 550 feet (167.6 m) north of the bridge for a total length of approximately 1,215 feet (370.3 m). A design exception will be necessary for the horizontal alignment.

C. Alternatives Eliminated from Further Study

The No-Build or “Do Nothing” alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by NC 88.

“Rehabilitation” of the existing structure is not feasible due to its age and deteriorated condition.

A box culvert was considered but is not a feasible alternative for this location.

D. Preferred Alternative

Alternative 3, replacing the existing bridge on a new location approximately 50 feet (15.2 m) west of the existing structure, is the preferred alternative. Alternative 3 was selected because it takes less construction time by building one bridge verses building two bridges needed by Alternative 2. The horizontal alignment of NC 88 north of the bridge would be greatly improved. This alternative would facilitate future widening of NC 88 to multi-lanes. Widening to the east of NC 88 is precluded by parallel streams and three lines of 8-foot (2.4-m) Corrugated Metal Pipe (CMP) under SR 1508 (Elliott Drive), which is very close to the NC 88 roadway.

IV. ESTIMATED COSTS

The estimated costs, based on current prices (2002), are as follows:

Table 1.0 Estimated Costs per Alternative			
	Alternative 1	Alternative 2	Alternative 3 (Preferred)
Structure	\$425,040	\$425,040	\$360,360
Roadway Approaches	\$480,402	\$610,317.50	\$853,184
Structure Removal	\$25,584	\$25,584	\$25,584
Misc. and Mobilization	\$283,974	\$346,808.50	\$428,872
Temporary On-Site Detour	\$0	\$111,250	\$0
Engineering & Contingencies	\$185,000	\$231,000	\$282,000
TOTAL CONSTRUCTION COST	\$1,400,000	\$1,750,000	\$1,950,000
Right of Way / Utilities	\$211,750	\$238,150	\$228,750
TOTAL PROJECT COST	\$1,611,750	\$1,988,150	\$2,178,750

The estimated cost of the project, shown in the 2002-2008 North Carolina Department of Transportation's Transportation Improvement Program (TIP) is \$ 710,000, including \$ 50,000 for right-of-way and \$ 660,000 for construction.

V. NATURAL RESOURCES

The information contained in this section is based on the Natural Systems Report (March 2002) prepared by Environmental Services Inc.

A. Methodology

The project study area was visited, walked, and visually surveyed for significant features on May 2, 2001. The project study area encompasses the various alternatives under consideration and is approximately 1,500 feet (457.2 m) in length and 450 feet (137.2 m) in width. Impacts calculated for each alignment using a width of approximately 60 feet (18.3 m); actual impacts will occur within construction limits and will be less than those calculated for this report. Special concerns evaluated in the field include potential habitat for protected species, streams, wetlands, and water quality protection.

Plant community descriptions are based on a classification system utilized by the North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968). Jurisdictional areas were identified using the three parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Martof *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Hamel 1992, Rohde *et al.* 1994, Palmer and Brazwell 1995). Water quality information for area streams and tributaries was derived from available sources (DEM 1989, DEM 1993, DENR 2001a, DWQ 1999, DWQ 2000). Quantitative sampling was not undertaken to support existing data.

The most current United States Fish and Wildlife Service (FWS) listing of federally protected species for Ashe County was obtained prior to initiation of the field investigation (list date March 7, 2002). In addition, NHP records documenting presence of federal or state listed species were consulted before commencing the field investigation.

B. Physiography and Soils

The project study area is located in the Mountain physiographic province in the northwestern part of North Carolina. Topography is characterized by rolling to steep mountainous terrain. Elevations in the project study area range from approximately 2,800 feet (853.4 m) above mean sea level (MSL) to approximately 2,840 feet (865.6 m) above MSL. (USGS Warrensville, NC quadrangle).

The project study area crosses seven soil mapping units. Six of the mapping units are non-hydric and include the Clifton loam (15-25% slopes) (Typic Hapludults), Tusquitee loam (8-15% slopes) (Umbric Dystrochrepts), Evard loam (15-25% slopes) (Typic Hapludults), Evard loam (25-45% slopes) (Typic Hapludults), Braddock gravelly loam (2-8% slopes) (Typic Hapludults), and Porters stony loam (25-65% slopes) (Umbric Dystrochrepts). Also included in the project study area is a hydric soil mapped as Toxaway loam (Cumulic Humaquepts), which is a poorly drained to very poorly drained soil on floodplains (USDA 1985).

C. Water Resources

1. Waters Impacted

The project study area is located within the sub-basin 050702 of the New River Basin (DWQ 2000). This area is part of USGS Hydrologic Unit 05050001 (USGS 1974). There are three stream channel segments within the project study area, including Buffalo Creek as well as Little Buffalo Creek and one of its unnamed tributaries. Buffalo Creek originates west of NC 88 near the Town of West Jefferson in Ashe County and flows north to its confluence with the North Fork New River downstream of the project study area. Buffalo Creek has been assigned Stream Index Number (SIN) 10-2-20 by the DWQ from its source to its confluence with the North Fork New River (DEM 1993, DENR 2001a).

Little Buffalo Creek originates in Mount Jefferson State Park in Ashe County and flows north to its confluence with Buffalo Creek, which is located within the project study area. Little Buffalo Creek has been assigned SIN 10-2-20-1 by DWQ from its source to the confluence with Buffalo Creek (DEM 1993, DENR 2001a).

The unnamed tributary that flows into Little Buffalo Creek originates approximately 1.0 mile (1.6 km) north of the project study area and runs parallel to SR 1508. No SIN has been designated to the unnamed tributary (DEM 1993, DENR 2001a).

2. Water Resource Characteristics

Stream Characteristics

Buffalo Creek is a perennial mountain stream with moderate flow over substrate consisting of sand, gravel and cobble with occasional boulders. A geomorphic characterization of the stream section within the project study area indicates Buffalo Creek is a “B” channel (Rosgen 1996). This designation indicates that the stream is a moderately entrenched, moderate gradient, riffle dominated channel, with infrequently spaced pools. “B” channels are characterized by very stable plan and profile, with stable

banks (Rosgen 1996). Buffalo Creek ranges from 20 to 40 feet (6.1 to 12.2 m) in width with a bankfull depth ranging from 30 to 40 inches (76.2 to 101.6 cm).

Little Buffalo Creek is a perennial stream channel with moderate flow over sand, gravel and silt substrate. Little Buffalo Creek ranges from 8 to 27 feet (2.4 to 8.2 m) in width, with a bankfull depth ranging from 12 to 20 inches (30.5 to 50.8 cm). A geomorphological classification of the channel reach within the project study area indicates the majority of Little Buffalo Creek is a “B” type stream channel. One section of Little Buffalo Creek located immediately downstream of SR 1588 is classified as an “F” type stream channel. This reach includes the confluence of Little Buffalo Creek and its unnamed tributary, which occurs immediately below the outfall of the culverts under SR 1508. The section of Little Buffalo Creek is very wide, 27 feet (8.2 m), and shallow with a bankfull depth of approximately 12 inches (30.5 cm). This section is laterally contained by an adjacent residential area and NC 88. This section has little available floodplain.

The unnamed tributary to Little Buffalo Creek is a perennial stream channel with slow flow over gravel, sand and silt substrate, with occasional cobble. This channel ranges from 5 to 7 feet (1.5 to 2.1 m) in width, with a bankfull depth of 4 to 6 inches (10.2 to 15.2 cm). The channel is deeply incised, with a high bank of approximately 6 feet (1.8 m). No available floodplain is located adjacent to the channel. The stream has been apparently channelized and relocated to its current location. A geomorphological classification of this stream channel indicates the unnamed tributary to Little Buffalo Creek is an “F” type stream.

Best Usage Classifications and Water Quality

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. Buffalo Creek has a best usage classification of **C Tr+** (DEM 1993, DENR 2001a). The designation **C** denotes appropriate uses including aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to human body contact with waters on an infrequent or incidental basis. The supplemental classification **Tr** is used for trout waters characterized as waters suitable for natural trout propagation and maintenance of stocked trout. The special designation **+** identifies waters that are subject to a special management strategy specified in 15A 2B .0216, the Outstanding Resource Waters (**ORW**) rule, in order to protect downstream waters designated as **ORW** (DEM 1993, DENR 2001a). Little Buffalo Creek has also been assigned a Best Usage Classification of **C Tr+** (DEM 1993, DENR 2001a). The unnamed tributary that flows into Little Buffalo Creek has not been specifically described in the

schedule of classifications and has not been assigned a separate Best Usage Classification, and therefore shares the classification of its receiving water, C Tr+ (DEM 1993, DENR 2001a).

No **WS-I** or **WS-II** Waters occur within 3.0 miles (4.8 km) upstream or downstream of the project study area (DEM 1993). Buffalo Creek, Little Buffalo Creek, and its unnamed tributary have not been designated as a North Carolina Natural and Scenic River, nor as a National Wild and Scenic River.

Buffalo Creek is a Designated Public Mountain Trout Water (DPMTW) managed for stocked and wild trout by the North Carolina Wildlife Resources Commission (WRC). The DPMTW designation indicates trout waters which are publicly accessible.

There is one permitted point source dischargers located on Buffalo Creek (DENR 2001a). Buffalo Meadows DDK Environmental (Permit No. NC0030325) has a permitted discharge of 0.01 million gallons [0.037 million liters (l)] per day, and is located approximately 1.7 miles (2.7 km) upstream of the project study area. No other permitted discharges are located on Buffalo Creek, Little Buffalo Creek or its unnamed tributary.

From 1985 to 1998 benthic macroinvertebrate samples were taken in three different sections of Buffalo Creek from its source to the North Fork New River. The first monitoring site, upstream from the confluence of Buffalo Creek and Little Buffalo Creek, is approximately 0.5 mile (0.8 km) upstream of the project study area. This sample location was established in 1985 and received a bioclassification of Good. The second monitoring site at NC 88/194 over Buffalo Creek is approximately 0.5 mile (0.8 km) downstream of the project study area. This sample location was established in 1985 and received a bioclassification of Good-Fair. The third monitoring site, at SR 1125/1133 over Buffalo Creek, is approximately 1.5 miles (2.4 km) from the project study area. Two samples were taken at this location, one in 1993 and one in 1998. Both years this section of Buffalo Creek received a bioclassification of Good (DWQ 1999).

Another measure of water quality being used by DWQ is the North Carolina Index of Biotic Integrity (NCIBI), which assesses biological integrity using the structure and health of the fish community; however, no fish community structure sampling was taken within 3.0 miles (4.8 km) of the project study area (DWQ 2000).

3. Anticipated Impacts to Water Resources

Short-term impacts to water quality, such as sedimentation and turbidity, can be anticipated from construction-related activities. Best Management Practices (BMP's) can minimize impacts during construction, including implementing stringent erosion and sedimentation control measures, and avoiding using wetlands as staging areas can minimize construction impacts.

Other impacts to water quality that are anticipated as a result of this project include: changes in water temperature as a result of increased exposure to sunlight, increased shade due to the construction of the bridges, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channels. However, due to the limited amount of overall change in the surrounding areas, impacts are expected to be temporary in nature.

In-stream construction activities will be scheduled to avoid and minimize impacts to aquatic resources/organisms. Buffalo Creek is Hatchery Supported Trout Water from its headwaters to the intersection of NC 88/194 and SR 1131, which is located in the project study area, approximately 30 feet (9.4 m) south of the existing bridge. In a letter dated August 6, 2001 the NC Wildlife Resources Commission (WRC) stated that a trout moratorium would be required for this project due to the likelihood of the presence of wild trout. In-stream work and land disturbance activities within the 25-foot (7.6-m) buffer zone is prohibited during trout spawning season of October 15 through April 15. Additionally, WRC requires that the bridge not be replaced with a culvert, which would be a hindrance to fish as well as wildlife passage (See Appendix).

No adverse long-term impacts to water resources are expected to result from any of the alternatives being considered. New location alternatives will result in limited clearing of some canopy along the stream bank, resulting in potential for localized increase in sunlight and stream temperature. All alternatives for the proposed project include a channel spanning structure, which will allow for continuation of present stream flow within the existing channel, thereby protecting stream integrity.

BMP's to be followed for this project are outlined in "Design Standards in Sensitive Watersheds" (NCAC 04B .0024), and will be adhered to during design and construction of this project in and around all waters classified as **WS**, **ORW**, **HQW**, or **Tr**. This includes all stream waters within the project study area.

4. Impacts Related to Bridge Demolition and Removal

Bridge No. 57 has a superstructure composed of a reinforced concrete floor on I-beams. The substructure is composed of abutments, reinforced concrete spill throughs, interior bents, and reinforced concrete posts and beams.

The deck, curb and bents are proposed for removal in a manner which avoids dropping any components into the water; however, with the presence of reinforced concrete in the superstructure over Buffalo Creek temporary fill associated with bridge removal may occur. Up to approximately 10 cubic yards (7.6 cubic meters) of fill from the superstructure may occur as a result of bridge removal. Although the substructure contains reinforced concrete, no concrete piers are located in the water and will be removed in such a manner that no components will be dropped into Buffalo Creek.

D. Biotic Resources

1. Plant Communities

Five distinct plant communities were identified within the project study area: mesic mixed hardwood forest, maintained/disturbed areas, piedmont/low mountain alluvial forest, rocky bar and shore and rich cove forest. These plant communities are described below.

a. Man-Dominated Community

Maintained/Disturbed Areas – The maintained/disturbed areas cover approximately 3.67 acres (1.49 ha) (29.7 percent) of the project study area and include roadsides, maintained residential yards, powerline rights-of-way, and areas where other human related activities dominate. Roadsides and powerline rights-of-way are maintained by mowing and/or herbicides. Residential yards are dominated by various grasses, shrubs and ornamentals. Two small jurisdictional wetland areas are located within the community type and are discussed in Section V.D.4.b. Vegetation consists of black willow (*Salix nigra*), tulip poplar (*Liriodendron tulipifera*), common cattail (*Typha latifolia*), silky dogwood (*Cornus amomum*), and blackberry (*Rhus* spp.).

b. Other

Mesic Mixed Hardwood Forest – The mesic mixed hardwood forest community covers approximately 0.95 acre [0.38 hectares (ha)] (7.6 percent) of the project study area and is limited to the north and east facing slopes along the southern edge of the streambanks of the project study area. Tree species within these areas include tulip poplar, shagbark hickory (*Carya ovata*), Canadian hemlock (*Tsuga canadensis*), and scattered American beech (*Fagus grandifolia*) with some areas of white pine (*Pinus strobus*). The

midstory is generally open, with saplings of overstory species as well as sugar maple (*Acer saccharinum*), yellow buckeye (*Aesculus octandra*), black cherry (*Prunus serotina*) and eastern hophornbeam (*Ostrya virginiana*). The herbaceous species present include Christmas fern (*Polystichum acrostichoides*) mayapple (*Podophyllum peltatum*), Solomon's seal (*Polygonatum biflorum*), trillium (*Trillium* spp.) and scattered multiflora rose (*Rosa multiflora*).

Piedmont/Low Mountain Alluvial Forest – The piedmont/low mountain alluvial forest covers approximately 1.11 acres (0.45 ha) (9.0 percent) of the project study area and is associated with the Buffalo Creek floodplain. The piedmont/low mountain alluvial forest community is located in river and stream floodplains in which separate fluvial landforms and associated vegetation zones are too small to distinguish (Schafale and Weakley 1990). This community is characterized by location in a floodplain and the presence of alluvial species such as American sycamore (*Platanus occidentalis*), tulip poplar, silky dogwood, river birch (*Betula nigra*), yellow buckeye, black cherry, and mayapple.

Rocky Bar and Shore – Rocky outcrops and gravel bars cover approximately 0.03 acre (0.01 ha) (0.2 percent) of the project study area and are in or adjacent to rivers and streams, which are too rocky, too wet, or too severely flooded to support trees. Community dynamics are dominated by flooding, sediment input and disturbance associated with Buffalo Creek.

Rich Cove Forest – The rich cove forest covers approximately 3.75 acres (1.52 ha) (30.4 percent) of the project study area and is classified as the dominance of mesophytic trees and diverse herb layer. It is generally located in low to moderate elevation sites and primarily broad coves and lower slopes. The rich cove forest in the project study area is located at the base of the north-facing slopes. The species present in this community type include striped maple (*Acer pensylvanicum*), black cherry, sugar maple, white pine, multiflora rose and mayapple.

2. Wildlife

The project study area was visually surveyed for signs of terrestrial and aquatic wildlife. Little evidence of wildlife was observed during the field effort. The project study area is surrounded by a busy roadway, mature forest cover and residential yards. Alluvial forests along streams such as Buffalo Creek provide cover and food and allow animals to travel between more optimal habitats. Other expected wildlife species are those adapted to ecotones between the maintained roadside and adjacent natural forest.

Few bird species were observed within or adjacent to the project study area. Bird species expected within and around the project study area include killdeer (*Charadrius vociferus*), downy woodpecker (*Picoides pubescens*), northern rough-winged swallow (*Stelgidopteryx ruficollis*), Carolina wren (*Thryothorus ludovicianus*), wood thrush (*Hylocichla mustelina*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), red-eyed vireo (*Vireo olivaceus*), song sparrow (*Melospiza melodia*), and northern cardinal (*Cardinalis cardinalis*). Species that commonly occur in other regional alluvial forests include barred owl (*Strix varia*), belted kingfisher (*Megaceryle alcyon*), and pileated woodpecker (*Dryocopus pileatus*).

Mammal sign (tracks, scat, etc.) observed within the project study area included domestic dog (*Canis familiaris*), eastern chipmunk (*Tamias striatus*) and raccoon (*Procyon lotor*). Also sited within the project study area was evidence of beaver (*Castor canadensis*). Species expected to use the Buffalo Creek floodplain as a travel corridor are fox (*Vulpes vulpes*), eastern cottontail (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), and bobcat (*Felis rufus*).

Due to the season in which the field work was conducted, no terrestrial reptiles were observed within the project study area. Expected reptile species include eastern garter snake (*Thamnophis sirtalis*), ringneck snake (*Diadophis punctatus*), black rat snake (*Elaphe obsoleta*), and eastern box turtle (*Terrapene carolina*).

No terrestrial amphibians were observed within the project study area. Species expected to occur within the project study area include slimy salamander (*Plethodon spp.*), Fowler's toad (*Bufo woodhouseii*), spring peeper (*Pseudacris crucifer*), and northern cricket frog (*Acris crepitans*).

3. Aquatic Communities

Limited kick-netting, seining, dip-netting, and visual observation of stream banks and channel within the project study area were conducted in Buffalo Creek.

Fish species were collected in three different locations in the project study areas; one in Little Buffalo Creek, one in Buffalo Creek above its confluence with the Little Buffalo Creek and one below this confluence. Fish species documented in Little Buffalo Creek are central stoneroller (*Campostoma anomalum*), northern hogsucker (*Hypentelium nigricans*), fantail darter (*Etheostoma flabellare*), mountain redbelly dace (*Phoxinus oreas*), blacknose dace (*Rhinichthys atratulus*), longnose dace (*Rhinichthys cataractae*), rosyside dace (*Clinostomus funduloides*), and bluehead chub (*Nocomis leptocephalus*). The

fish species documented in the segment of Buffalo Creek above the confluence are central stoneroller, brown trout (*Salmo trutta*), northern hogsucker, redlip shiner (*Notropis chiliticus*), mottled sculpin (*Cottus bairdi*), fantail darter, and mountain redbelly dace. The fish species documented in the segment of Buffalo Creek below the confluence are northern hogsucker, central stoneroller, brown trout, mottled sculpin, rainbow trout (*Oncorhynchus mykiss*), blacknose dace, bluntnose minnow (*Pimephales notatus*), and highback chub (*Hybopsis hypsinotus*).

Aquatic invertebrate surveys consisted of walking all streambanks in the project study area to locate freshwater mussel middens and conducting limited in-stream surveys. Visual observation of streambanks of Buffalo Creek, Little Buffalo Creek and the unnamed tributary revealed no evidence of freshwater mussels or middens. Kick-net, sweep-net, leaf pack, visual surveys and limited bottom sampling conducted within Little Buffalo Creek and Buffalo Creek projected various aquatic macroinvertebrates. Benthic invertebrate organisms collected within the Little Buffalo Creek were identified to at least Order and Family, if possible, and include dragonflies and damselflies (Odonata), caddisflies (Trichoptera), midges (Diptera:Chironomidae), mayflies (Ephemeroptera), stoneflies (Plecoptera), water beetles (Coleoptera), hellgrammites (Megaloptera), and crayfish (Decapoda). Benthic invertebrate organisms collected within the channel of Buffalo Creek, also identified to at least Order and Family, if possible, include mayflies, stoneflies, caddisflies, midges, crane flies (Diptera: Tipulidae), water beetles, dragonflies, hellgrammites, crayfish, aquatic earthworms (Annelida), and snails (Gastropoda). Identifications are based on McCafferty (1998) and Merritt et al. (1996).

No aquatic amphibians were observed within the project study area. Species expected to occur within the project study area include red-spotted newt (*Notophthalmus viridescens*), bullfrog (*Rana catesbeiana*) and pickerel frog (*Rana palustris*).

No aquatic reptiles were observed within the project study area. Species expected to occur within the project study area include the painted turtle (*Chrysemys picta*), common snapping turtle (*Chelydra serpentina*), northern water snake (*Nerodia sipedon*) and queen snake (*Regina septemvittata*).

2. Anticipated Impacts to Biotic Communities

a. Terrestrial Communities

Anticipated impacts to plant communities are estimated based on the acreage of each plant community present within the proposed right-of-way of 60 feet (18.3 m); actual impacts within construction limits will be less. A summary of potential plant community impacts is presented below:

Table 2.0 Plant Community Impacts per Alternative				
PLANT COMMUNITY	ESTIMATED IMPACTS in acres (hectares)			
	Alternative 1	Alternative 2		Alternative 3 (Preferred)
	Impacts	Impacts	Temp. Detour Impacts	Impacts
Mesic Mixed Hardwood Forest	0.02 (0.01)	0.02 (0.01)	0.00	0.07 (0.03)
Maintained/Disturbed	0.22 (0.09)	0.22 (0.09)	0.14 (0.06)	0.25 (0.10)
Piedmont/Low Mountain Alluvial Forest	0.00	0.00	0.00	0.00
Rocky Bar	0.00	0.00	0.00	0.00
Rich Cove Forest	0.05 (0.02)	0.05 (0.02)	0.20 (0.08)	0.63 (0.25)
Total	0.29 (0.12)	0.29 (0.12)	0.34 (0.14)	0.95 (0.38)
Total by ALT:	0.29 (0.12)	0.63 (0.25)		0.95 (0.38)

Note: Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.

Alternative 1 contains the least amount of potential permanent impact of 0.29 acre (0.12 ha) with the majority of the impact occurring within Maintained/Disturbed areas. Alternative 2 contains the median amount of potential impact of 0.63 acre (0.25 ha), with the majority of the impact occurring within Maintained/Disturbed areas; however, potential permanent impacts are smaller due to the temporary detour of 0.29 acre (0.12 ha). Alternative 3 contains the largest area of potential permanent impact of 0.95 acre (0.38 ha) and the largest area of potential impact to a natural community, Rich Cove Forest.

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in significant loss or displacement of known terrestrial animal populations.

Wildlife movement corridors are currently limited within the project study area and are not expected to be significantly impacted by the proposed project.

b. Wetland Communities

Anticipated impacts to wetlands and open water areas are estimated based on the amount of each jurisdictional area within the proposed right-of-way width of 60 feet (16.3 m); actual areas within construction limits will be less. Open water areas of Buffalo Creek are included in this table. During bridge removal, Best Management Practices (BMP's), including erosion control measures will be used. Therefore, it is anticipated that removing the existing bridge will result in no impact to surrounding surface waters. A summary of potential jurisdictional impacts is presented in Table 3.0 and shown in Figure 6.

Table 3.0 Estimated Impacts to Jurisdictional Areas per Alternative				
JURISDICTIONAL AREAS	ESTIMATED IMPACTS			
	Alternative 1	Alternative 2		Alternative 3 (Preferred)
	Impacts	Impacts	Temp. Construction Impacts*	Impacts
Open Water in acres (ha)	0.04 (0.02)	0.04 (0.02)	0.03 (0.01)	0.03 (0.01)
PSS1 in acres (ha)	0.00	0.00	0.00	0.00
TOTAL FOR ALTS :	0.04 (0.02)	0.07 (0.03)		0.03 (0.01)
Stream Channel Impacts in feet (m)	60 (18.3)	60 (18.3)	40 (12.2)	60 (18.3)
TOTAL FOR ALTS:	60 (18.3)	100 (30.5)		60 (18.3)

*Note: Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.

Alternative 3 contains the least amount of potential permanent open water impacts at 0.03 acre (0.01 ha). Alternative 3 crosses Buffalo Creek at one of its narrowest points within the project study area. Alternative 1 contains the median amount of potential open water impact at 0.04 acre (0.02 ha). Alternative 2 contains the largest amount of open water area at 0.07 acre (0.03 ha), as well as the longest length of stream channel at 100 linear feet (30.5 m). Alternatives 1 and 3 each contain only 60 linear feet

(18.3 m) of stream channel. All proposed alternatives and temporary detours avoid the jurisdictional wetland areas.

Wetlands subject to review under Section 404 of the Clean Water Act (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). Based on the three-parameter approach, two jurisdictional wetlands are present within the project study area.

The first jurisdictional wetland area present is located adjacent to Little Buffalo Creek, upstream of its confluence with Buffalo Creek at the edge of a maintained residential yard. This area consists of a small floodplain directly adjacent to Little Buffalo Creek. Soils within this area were hydric in nature (Munsell color 10YR3/1). Vegetation was hydrophytic in nature, consisting mostly of black willow, tulip poplar seedlings, and common cattail. A primary jurisdictional hydrologic indicator was noted, with saturation found at 10 inches (25.4 cm) below the soil surface. Although this area is riverine influenced, it exhibits palustrine characteristics, as defined by Cowardin *et al.* (1979). This area exhibited characteristics of a palustrine, scrub-shrub system with broad leaved, deciduous vegetation.

The second jurisdictional wetland area present within the project study area consists of a linear depression located in a maintained/successional area between Little Buffalo Creek and NC 88/194. This area receives runoff from an adjacent business as well as NC 88/194. Soils within this area were hydric in nature (Munsell color 10YR3/1). Vegetation within this area was hydrophytic in nature, consisting of silky dogwood, blackberry, and various grasses. A primary jurisdictional hydrologic indicator was noted, with saturation noted at the soil surface. This area exhibited characteristics of a palustrine, scrub-shrub system with broad leaved, deciduous vegetation (PSS1).

c. Aquatic Communities

Potential down-stream impacts to aquatic habitat will be avoided by bridging Buffalo Creek to maintain regular flow and stream integrity. In addition, temporary impacts to downstream habitat from increased sediment during construction are expected to be reduced by limiting the in-stream work to an absolute minimum, except for the removal of the portion of the substructure below the water. Best Management Practices (BMP) for the protection of surface waters should be strictly enforced to reduce impacts. Best Management Practices for Bridge Demolition and Removal (BMP-BDR) will be followed to minimize impacts due to anticipated bridge demolition. The NCWRC has prohibited any in-stream

work and land disturbance activities within the 25-foot (7.6-m) buffer zone during the trout spawning season of October 15 through April 15.

E. Special Topics

1. “Waters of the United States”: Jurisdictional Issues

Surface waters within the embankments of Buffalo Creek and Little Buffalo Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR 328.3). Waters associated with the reaches of both Buffalo Creek, Little Buffalo Creek and the unnamed tributary within the project study area all exhibit characteristics of riverine, upper perennial, unconsolidated bottom, permanently flooded waters (R3UBH) (Cowardin *et al.* 1979).

2. Permits

a. Section 404 of the Clean Water Act

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. Nationwide Permit (NWP) #23 [33 CFR 330.5(a)(23)] has been issued by the U.S. Army Corps of Engineers (COE) for use with projects classified as a CE due to expected minimal impact. In the event that NWP #23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized. NWP #33 may be used if temporary structures, work and discharges, including cofferdams are necessary for this project.

b. Section 401 Water Quality Certification

Section 401 of the CWA delegates authority to the states to issue a 401 Water Quality Certification for all projects that require a Federal Permit, such as a Section 404 Permit. DWQ has issued a General 401 Water Quality Certification for NWP #23. Use of this permit will require written notice to DWQ. However, if mitigation is required, the project must be coordinated with DWQ for review of the mitigation plans.

c. Bridge Demolition and Removal

Section 402-2 of NCDOT's Standard Specifications for Roads and Structures is labeled **Removal of Existing Structure**. This section outlines restrictions and BMP-BDRs, as well as guidelines for calculating maximum potential fill in the creek resulting from demolition. This project is designated as a Case 1 stream crossing, which applies to ORW, and a Case 2 stream crossing, which applies to designated

trout waters. Case 1 limits in-water work to an absolute minimum, except for the removal of a portion of the sub-structure below the water. Case 2 allows no work at all in the water during the moratorium period associated with fish migration, spawning, and larval recruitment in nursery areas. After construction activities are completed, abandoned approaches associated with the existing structure and/or temporary detours will be removed and revegetated in accordance with NCDOT guidelines.

d. Coast Guard

Bridge replacement or construction over navigable waters used for commerce or that have a maintained navigation channel may require United States Coast Guard (USCG) authorization pursuant to 33 CFR 114-115. Buffalo Creek is not designated as a navigable river.

e. Tennessee Valley Authority

Bridge No. 57 is located outside of the Tennessee River drainage area and no TVA land or land rights are involved. Therefore, TVA's approval of the plans pursuant to Section 26a of the TVA Act for Bridges and Indicated Locations is not required.

f. Designated Public Mountain Trout Water

Ashe County is among the twenty-five mountain counties designated as having trout waters. Buffalo Creek is a Designated Public Mountain Trout Water (DPMTW) from its headwaters to the NC 194/88 and SR 1131 (Buffalo Road) intersection. The project will affect the outer limits of these designated waters. Also, Buffalo Creek is designated as a Trout Water by DWQ. The WRC has prohibited any in-stream work and land disturbance activities within the 25-foot (7.6-m) buffer zone during trout spawning season of October 15 through April 15.

g. Special Waters

Buffalo Creek is designated as "+". Therefore, the waters are subject to a special management strategy specified in 15A NCAC 2B .0225, the Outstanding Resource Waters rule, to protect downstream waters. Buffalo Creek, Little Buffalo Creek, and its unnamed tributary have not been designated as North Carolina Natural and Scenic Rivers, nor as National Wild and Scenic Rivers.

3. Buffer Rules

No buffer rules currently apply to the New River Basin.

4. Mitigation

Avoidance – Due to the presence of surface waters within the project study area, avoidance of impacts is not possible. Wetland and stream impacts are previously discussed in Section V.D.4.b.

Minimization – The alternatives presented were developed in part to demonstrate minimization of stream impacts. Impacts to Buffalo Creek will be minimized during demolition by removing the existing structure in a way that avoids depositing debris in Buffalo Creek.

Mitigation - Compensatory mitigation is not proposed for this project due to the limited nature of project impacts. However, utilization of BMPs is recommended in an effort to minimize impacts including avoiding placing staging areas within wetlands. Temporary impacts associated with the construction activities could be mitigated by replanting disturbed areas with native species and removal of temporary fill material upon project completion. Final compensatory wetland and stream mitigation requirements will be determined by the USACE under the statutory provisions of CWA §404 and the January 15, 2002 Final Notice of Issuance of Nationwide Permits.

F. Rare and Protected Species

1. Federally Endangered and Threatened Species

Species with the federal classification of Endangered (E) or Threatened (T), or officially proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The following federal protected species are listed for Ashe County (list dated March 7, 2002):

Table 4.0 Federally Threatened and Endangered Species			
Common Name	Scientific Name	Status	Biological Conclusion
Bog turtle	<i>Clemmys muhlenburgii</i>	T(S/A)	Not required
Spreading avens	<i>Geum radiatum</i>	E	No effect
Swamp pink	<i>Helonias bullata</i>	T	No effect
Roan Mountain bluet	<i>Houstonia montana</i>	E	No effect
Heller's blazing star	<i>Liatris helleri</i>	T	No effect
Virginia spiraea	<i>Spiraea virginiana</i>	T	No effect
Rock gnome lichen	<i>Gymnoderma lineare</i>	E	No effect

Note: E – Endangered, T – Threatened, T(S/A) – Threatened due to similarity of appearance

Bog Turtle - The bog turtle is a small turtle reaching an adult size of approximately 3 to 4 inches (7.6 to 10.2 cm). This otherwise darkly-colored species is readily identifiable by the presence of a bright orange or yellow blotch on the sides of the head and neck (Martof *et al.* 1980). The bog turtle is typically found in bogs, marshes, and wet pastures, usually in association with aquatic or semi-aquatic vegetation and small, shallow streams over soft bottoms (Palmer and Braswell 1995). In North Carolina, bog turtles have a discontinuous distribution in the Mountains and western Piedmont. NHP records do not indicate that the bog turtle has been documented within 3.0 miles (4.8 km) of the project study area.

BIOLOGICAL CONCLUSION: The bog turtle is listed as Threatened due to Similarity of Appearance [T(S/A)]. T (S/A) species are not subject to Section 7 consultation and a biological conclusion is not required. This project is not expected to affect the bog turtle. This species requires open wetland areas, including bogs and wet pastures. Although one jurisdictional area exists which resembles this description, it is completely avoided by all project alternatives. **NO EFFECT.**

Spreading Avens - Spreading avens is an erect, densely hairy, perennial herb up to 20 inches (50.8 cm) tall. A basal rosette of odd-pinnately compound leaves is produced from a horizontal rhizome (USFWS 1993). These leaves are long stalked and terminated by a large kidney-shaped lobe; tiny leaflets are usually present below the terminal lobe (Kral 1983). Small, sessile, serrated leaves are found on the flowering stem. Lanceolate sepals and relatively long petal lengths of 0.5 to 0.8 inches (1.3 to 2 cm) help differentiate spreading avens from related species (Massey *et al.* 1983). Bright yellow, five-petaled flowers approximately 2.4 to 3.1 inches (6.1 to 7.9 cm) across are produced from June to August; these are followed between July and October by hairy achenes with a persistent, straight style approximately 0.2 inches (0.5 cm) long (Massey *et al.* 1983). Vegetative parts may emerge in May and persist through October.

Spreading avens usually occurs at elevations greater than 5,000 feet (1,524 m) above MSL in mountain grass balds or in grassy clearings in heath balds as well as in crevices of granitic rock. This species cannot tolerate shading or crowding (Kral 1983). Spreading avens is found in a few northwestern counties of North Carolina, and in nearby counties of Tennessee. NHP records indicate that spreading avens has been documented within 3.0 miles (4.8 km) of the project study area. In 1989, spreading avens was documented to occur on Phoenix Mountain, approximately 2.5 miles (4.0 km) northeast of the project study area. In 1994, spreading avens was documented to occur on Bluff Mountain, approximately 3.0 miles (4.8 km) southwest of the project study area.

BIOLOGICAL CONCLUSION: The proposed project is not expected to affect spreading avens since elevations within the project study area are a maximum of 2,840 feet (865.6 m) above MSL, significantly below the reported minimum elevation of 5,000 feet (1,524 m) above MSL for this species. Suitable habitat for this species, consisting of balds or rock outcroppings, was not identified within the project study area. **NO EFFECT.**

Swamp Pink – Swamp pink is a perennial, hydrophytic herb in the lily family with simple leaves in a basal rosette. Small scale-like leaves or bracts are found on a hollow flowering stem which may be 16 inches (40.6 cm) tall in flower and 24 inches (60.9 cm) tall in fruit (USFWS 1991). The inflorescence consists of pink to lavender flowers borne on a raceme without bracts. Fruits consist of three-lobed papery capsules. Flowering occurs in April and May, with fruits present from May through July. Vegetative portions of the plant may emerge in April and persist through September (Massey *et al.* 1983).

In North Carolina, swamp pink is found in mountain swamps and bogs. Swamp pink occurs along small watercourses in permanently saturated, acidic, organic soils or black muck which is mostly sphagnum (Porter and Wieboldt 1991). Swamp pink does not tolerate prolonged inundation, but can survive infrequent and brief flooding. NHP records do not indicate that swamp pink has been documented within 3.0 miles (4.8 km) of the project study area.

BIOLOGICAL CONCLUSION: The proposed project is not expected to affect swamp pink due to the lack of potential habitat within the project study area. The wetlands within the project study area do not offer conditions similar to mountain swamps and bogs and soils do not consist of organic material. **NO EFFECT.**

Roan Mountain Bluet - Roan Mountain bluet, formerly treated as a variety of the summer bluet (*Houstonia* [= *Hedyotis*] *purpurea*), is a low, erect to spreading perennial herb with a squarish stem typically growing to 6 inches (15.2 cm) high. The leaves are opposite, sessile, rounded basally but taper to a pointed tip and have smooth, toothless margins. Small, reddish purple, tubular flowers are produced on small terminal clusters in May through August with fruiting occurring in August and September (USFWS 1996). It differs from the more common *H. purpurea* by having larger, smooth-edged leaves, and by larger flowers, capsules, and seeds (Weakley 1993).

Roan Mountain bluet is endemic to the high Blue Ridge Mountains of North Carolina and Tennessee, mostly from 4,200 to 6,300 feet (1,280 to 1,920 m) above MSL in elevation. It grows in crevices of rock outcrops as well as in thin, gravelly soils of grassy balds near summit outcrops (Weakley 1993). NHP records indicate that Roan Mountain bluet has been documented twice to occur within 3.0 miles (4.8 km) of the project study area. In 1997, the Roan Mountain bluet was documented to occur on Bluff Mountain, approximately 3.0 miles (4.8 km) southwest of the project study area. In 1997, the Roan Mountain bluet was documented to occur on Three Top Mountain, approximately 1.8 miles (2.9 km) northwest of the project study area.

BIOLOGICAL CONCLUSION: The proposed project is not expected to affect Roan Mountain bluet since elevations within the project study area are a maximum of 2,840 feet (865.6 m) above MSL, significantly below the reported minimum elevation of 4,200 feet (1,280 m) for this species. Suitable habitat for this species, consisting of balds, was not identified within the project study area. **NO EFFECT.**

Heller's Blazing Star - Heller's blazing star is an erect herbaceous perennial with glabrous stems that reach heights of 4 to 20 inches (10.2 to 50.8 cm). The leaves are simple, linear to lanceolate, alternate, and arranged spirally along the stem. Leaf size is variable, with a gradual decrease in size up the stem. The inflorescence consists of compact heads arranged in a raceme-like fashion along the stem. The heads typically contain seven to ten tubular florets which may be purple to lavender in color. Heller's blazing star is distinguished from related species by shorter height and relatively short pappus (modified calyx lobes) half or less the length of the corolla tube (USFWS 1989). Flowers are produced from July to September, with fruiting occurring from August to October (Massey *et al.* 1983).

Heller's blazing star has been found on rocky summits at high elevations in the mountains of western North Carolina. This species typically is found in full sun growing in shallow, acidic soils on or around granitic outcrops, ledges, and cliff faces (Kral 1983, Massey *et al.* 1983). Heller's blazing star is reported to occur at elevations between approximately 3,500 to 6,200 feet (1,066.8 to 1889.7 m) above MSL. NHP records do not indicate that Heller's blazing star has been documented within 3.0 miles (4.8 km) of the project study area.

BIOLOGICAL CONCLUSION: The proposed project is not expected to affect Heller's blazing star since elevations within the project study area are a maximum of 2,840 feet (865.6 m) above MSL, below the reported minimum elevation of 3,500 feet (1,066.8 m) for this species.

Suitable habitat for this species, consisting of granite outcrops, ledges, or cliffs exposed to full sunlight, was not identified within the project study area. **NO EFFECT.**

Virginia Spiraea – Virginia Spiraea is a deciduous shrub with a modular growth form (USFWS 1992). This clonal shrub averages 3 to 10 feet (0.9 to 3.0 m) in height, but may reach heights of 13 feet (3.9 m). Its short-stalked leaves are alternate, nearly toothless, and narrowly elliptic with a pointed tip (Radford et al. 1968). Numerous small, white, 5-petaled flowers are produced on terminal clusters in June to July. Dried corymbs often persist through winter. Seed production is reported to be sporadic and most colonies are believed to arise from downstream dispersal and establishment of fragments of horizontal rootstock (Porter and Wieboldt 1991).

Endemic to the southern Appalachians, Virginia spiraea is restricted to disturbance-prone riverine areas, specifically along scoured banks of high gradient streams, meander scrolls, point bars, natural levees, and braided features of lower stream reaches (Porter and Wieboldt 1991). Disturbance is required for removal of woody competitors and to aid in establishment of colonies. NHP files do not indicate that Virginia spiraea occurs neither within Buffalo Creek upstream of the project area nor within 3.0 miles (4.8 m) of the project study area.

BIOLOGICAL CONCLUSION: Suitable habitat for Virginia spiraea was identified within the project study area; specifically, on the rocky bar communities located downstream of the existing bridge. Detailed surveys for this species were conducted on August 9, 2001. Prior to the initiation of the survey, a reference population was reviewed to familiarized ESI biologists with the flowering status and growth stage of this species. Systematic surveys were conducted in potential habitat within the project study area, as well as 100 feet (30.5 km) upstream and downstream of the project study area. No evidence of Virginia spiraea was noted. **NO EFFECT.**

Rock Gnome Lichen – The rock gnome lichen is a small, squamulose (strap-like) lichen in the reindeer moss (lichen) family. This species is similar to squamulose lichens in the genus Cladonia by having terminal portions of its strap-like lobes that are blue-gray on the upper surface and shiny-white on the lower surface; rock gnome lichen differs from these other lichens by having blackened lobe bases. The lichen grows nearly parallel to the rock surface to which it is attached, but the tips curl up to a near vertical orientation. Reproduction appears to be asexual, with colonies spreading clonally. Rock gnome lichen is typically found growing in association with a distinctively colored, reddish-brown moss (Andreaea) (Murdock 1993). The rock gnome lichen is endemic to the mountains of North Carolina and

Tennessee. Most populations occur above approximately 5000 feet (1,524 m) above MSL in areas subject to frequent fog cover, but the species has been found at lower elevations in deep gorges where a similar high humidity regime is present (FWS 1997). Rock gnome lichen typically occurs on vertical rock faces subject to intermittent seepage (FWS 1997). NHP records do not indicate that rock gnome lichen has been documented within 3.0 miles (4.8 km) of the project study area.

BIOLOGICAL CONCLUSION: The proposed project is not expected to affect rock gnome lichen since elevations within the project study area are a maximum of 2,840 feet (865.6 m) above MSL, below the reported minimum elevation of 5,000 feet (1,524 m) above MSL for this species. Suitable habitat, consisting of vertical rock faces with a high humidity regime, was not identified within the project study area. **NO EFFECT.**

2. Federal Species of Concern

The March 7, 2002 FWS list also includes a category of species designated as "Federal species of concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potential suitable habitat (Amoroso 1999, LeGrand and Hall 1999) within the project study area has been evaluated for the following FSC species listed for Ashe County:

Table 5.0 Federal Species of Concern

Common Name	Scientific Name	State Status	Potential Habitat
Kanawha minnow	<i>Phenacobius teretulus</i>	SC	Y
Appalachian cottontail	<i>Sylvilagus obscurus</i>	SR	N
Appalachian Bewick's wren	<i>Thryomanes bewickii altus</i>	E	N
Green floater	<i>Lasmigona subviridis</i>	E	Y
Pygmy snaketail	<i>Ophiogomphus howei</i>	SR	Y
Diana fritillary butterfly	<i>Speyeria diana</i>	SR	Y
Regal fritillary butterfly	<i>Speyeria idala</i>	SR	N
Gammon's stenelmis riffle beetle	<i>Stenelmis gammoni</i>	SR	N
Tall larkspur	<i>Delphinium exaltatum</i>	E-SC	N
Glade spurge	<i>Euphorbia purpurea</i>	C	N
Appalachian oak fern	<i>Gymnocarpium appalachianum</i>	E	N
Butternut	<i>Juglans cinerea</i>	W5	Y
Gray's lily	<i>Lilium grayi</i>	T-SC	N
Bog bluegrass	<i>Poa paludigena</i>	E	N
Carolina saxifrage	<i>Saxifraga caroliniana</i>	C	Y
Bluff Mountain reindeer lichen	<i>Cladonia psoromica</i>	C	N

Note: E - Endangered, T - Threatened, SC - Special Concern, C - Candidate, SR - Significantly Rare, W - Watch List, P - Proposed

NHP files do not document any FSC occurrences within the project study area. NHP files do document fourteen FSC occurrences within 3.0 miles (4.8 km) of the project study area; one Diana fritillary butterfly, one regal fritillary butterfly, three Gray's lily, and nine Carolina saxifrage.

The Diana fritillary butterfly occurrence is a 2000 record located on Mount Jefferson, approximately 3.0 miles (4.8 km) southeast of the project study area. The regal fritillary butterfly occurrence is a 1932 record located near the Town of Jefferson, Ashe County, approximately 2.5 miles (4.0 km) east of the project study area.

The first Gray's lily occurrence is a 1988 record located on Phoenix Mountain, approximately 2.5 miles (4.0 km) northeast of the project study area. The second Gray's lily occurrence is a 1991 record

located on Bluff Mountain, approximately 3.0 miles (4.8 km) southwest of the project study area. The third Gray's lily occurrence is a 1968 record located at the foot of Bluff Mountain, approximately 2.5 miles (4.0 km) southwest of the project study area.

The closest Carolina saxifrage occurrence was documented in 1997 near the South Fork New River, approximately 2.5 miles (4.0 km) northeast of the project study area. A second occurrence was documented in 1997 on Three Top Mountain, approximately 2.5 miles (4.0 km) northwest of the project study area. The remaining seven occurrences occurred approximately 3.0 miles (4.8 km) from the project study area.

3. Summary of Anticipated Impacts

Due to the federal status of the bog turtle [T(S/A)], this species is not subject to Section 7 consultation and a biological conclusion is not required. This project is not expected to affect the bog turtle or the other six threatened and endangered species located in Ashe County. Potential habitat occurs for six of the sixteen listed federal species of concern.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for inclusion in the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

A field survey of the Area of Potential Effect (APE) was conducted on October 18, 2001. All structures within the APE were photographed and later reviewed by the State Historic Preservation Office (HPO). In a concurrence form dated October 18, 2001 and a memorandum dated October 26, 2001, the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed in or eligible for listing in the National Register Historic Places within the APE. A copy of the concurrence form and the memorandum are included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated August 27, 2001, recommended that “no archaeological investigation be conducted in connection with this project.” A copy of the SHPO memorandum is included in the Appendix.

VII. SECTION 4(f) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966, as amended, states in part “The Secretary may approve a transportation project or program requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of a historic site of national, state, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if-

- (1) there is no prudent and feasible alternative to using land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use.”

There are no 4(f) impacts.

VIII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact on the local area. Replacement of an inadequate bridge will result in safer and more efficient traffic operations.

The project is considered to be a Federal “Categorical Exclusion” due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current NCDOT standards or specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

All three alternatives will result in one relocation. Construction of Alternative 2 or 3 will impact one property. A new driveway with a retaining wall will be constructed to allow access to this property. No other adverse effect on individual families or communities is anticipated. Right-of-way acquisition will be limited.

No adverse effect on public facilities or services is anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the surrounding area.

The studied route does not contain any bicycle accommodations, nor is it a designated bicycle route; therefore, no bicycle accommodations have been included as part of this project.

No geodetic survey markers will be impacted.

This project has been coordinated with the United States Natural Resources Conservation Service (NRCS). The Farmland Protection Policy Act requires all Federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. There are soils classified as prime, unique, or having state or local importance within 0.5-mile of the project. One soil, Tusquitee loam (TsD), 8 to 15% slopes, is classified as a prime farmland soil. State and local important soils are as follows: Clifton loam (CfE), 15 to 25% slopes, Braddock gravelly loam (BrD), 8 to 15% slopes, Toxaway loam (To), Tusquitee loam (TsE), 15 to 25% slopes, and Evard loam (EvE), 15 to 25% slopes. No unique soils occur within the 0.5-mile (0.8-km) radius of Bridge No. 57.

This project is in an air quality “neutral” project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

This project is located in Watauga County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Part 51 is not applicable because the proposed project is located in an attainment area.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC2D.0520. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulations (CFR), Part 772 and for air quality (1190 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

A search was performed within a 0.5-mile (0.8-km) radius of the project study area utilizing the ASTM Standard Practice for Environmental Site Assessments (E 1527-00). This search included the NPL

(National Priority List), CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System), RCRIS (Resource Conservation and Recovery Information), and UST (Petroleum Underground Storage Tank Database) as well as other applicable databases. The results of this search documented one UST site, the NCDOT Equipment Storage Unit, located at 296 Buffalo Road in West Jefferson, NC, approximately 1,000 feet (304.8 m) southwest of Bridge No. 57. No other mapped sites were found within the 0.5-mile (0.8-km) ASTM search radius. No impacts are anticipated to occur to the NCDOT Equipment Storage Unit.

Field surveys were performed and a Hydraulic Technical Memorandum was produced for this project in February 2001. Ashe County is a participant in the National Flood Insurance Program. Bridge No. 57 is located in a 100-year Federal Emergency Management Agency (FEMA) floodplain, Zone A. (See Figure 5). No base flood elevations have been determined. The approximate 100-year floodplain in the project area is shown on Figure 5. The amount of floodplain area to be affected is not substantial. The project will not increase the upstream limits of the 100-year floodplain. There is a USGS gage approximately 2.5 miles (4.0 km) downstream at site 03162110 on Buffalo Creek near Warrensville, North Carolina.

There are no other practical alternatives to crossing the floodplain area. Any shift in alignment will result in a crossing of about the same magnitude. All reasonable measures will be taken to minimize any possible harm.

On the basis of the above discussion, it is concluded that no significant adverse environmental effects will result from implementation of the proposed project.

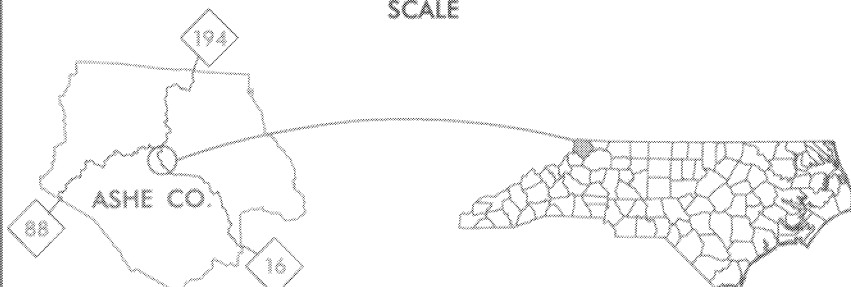
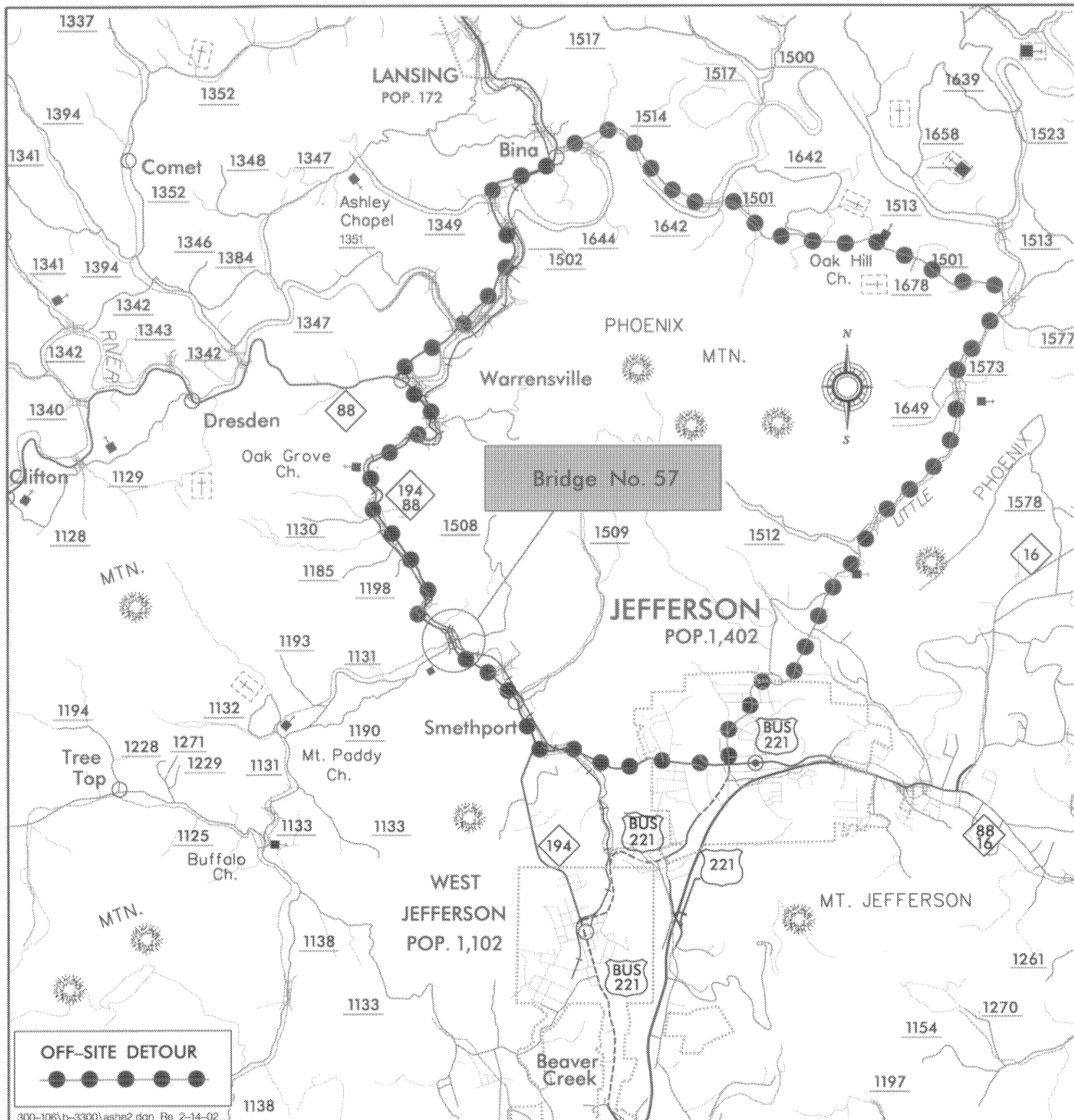
IX. PUBLIC INVOLVEMENT

Public involvement for this project initially involved compiling a database of property owners, area business persons and local public officials. This database was used to send out Newsletter No. 1 in October 2001 announcing the project and detailing the three alternatives being considered. A copy of the newsletter is included in the Appendix. A Citizens Informational Workshop was held on November 7, 2001 at the Ashe County Cooperative Extension Office. One written comment was received recommending Alternative 2.

X. AGENCY COMMENTS

Agencies have commented upon the proposed bridge replacement. These comments have been noted, considered in the environmental and design processes, and included in the Appendix.

EXHIBITS



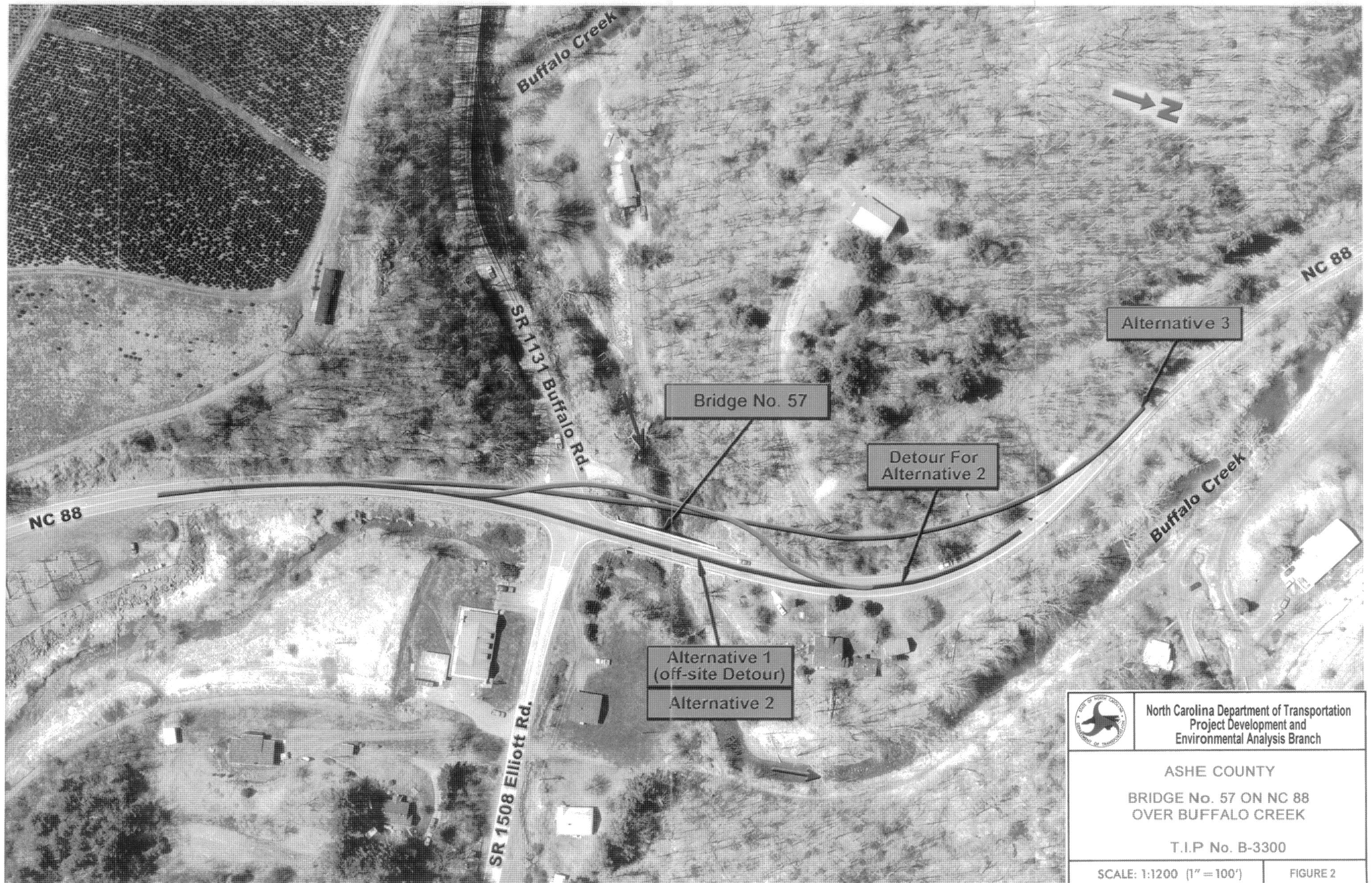
North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch


ASHE COUNTY

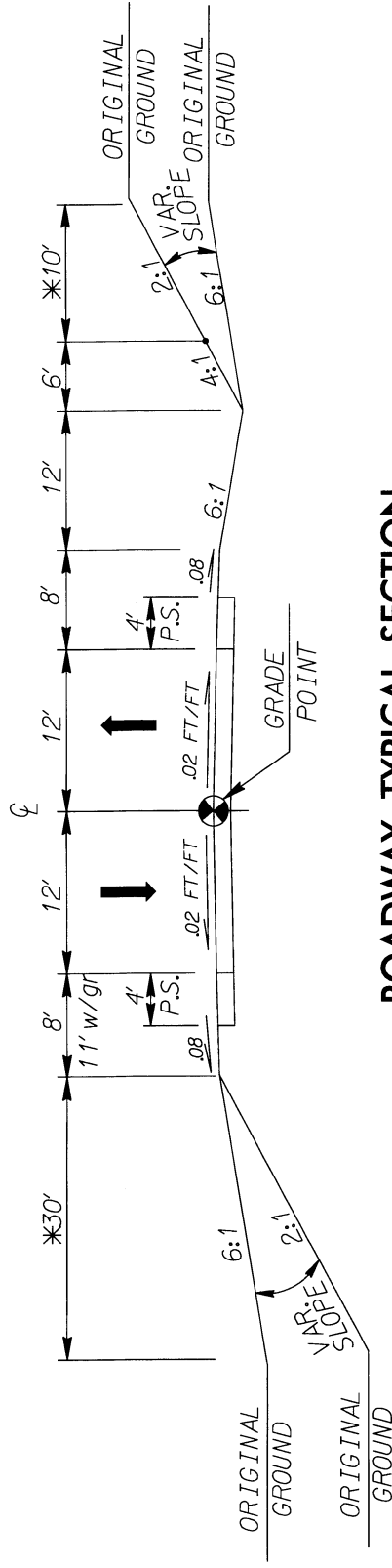
BRIDGE No. 57 ON NC 88
OVER BUFFALO CREEK

T.I.P. No. B-3300

FIGURE 1

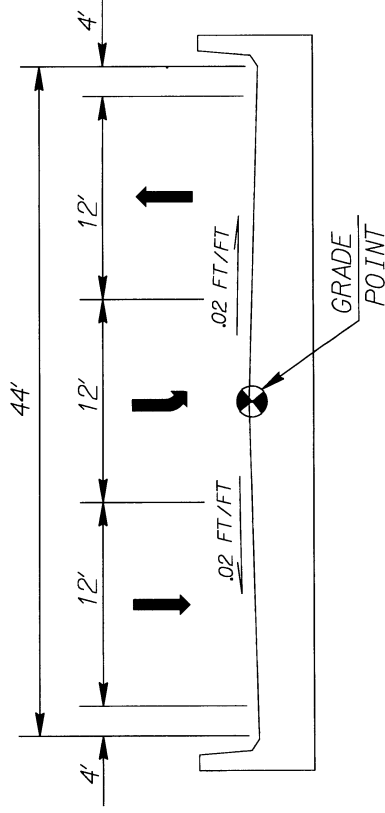


	North Carolina Department of Transportation Project Development and Environmental Analysis Branch
	ASHE COUNTY
	BRIDGE No. 57 ON NC 88 OVER BUFFALO CREEK
	T.I.P. No. B-3300
SCALE: 1:1200 (1" = 100')	
FIGURE 2	



ROADWAY TYPICAL SECTION

* When these distances indicate slopes outside the limits 6:1 to 2:1, the distance becomes variable and the maximum or minimum slope maintained.



TYPICAL BRIDGE SECTION

EXISTING BRIDGE LENGTH IS 121 FT.



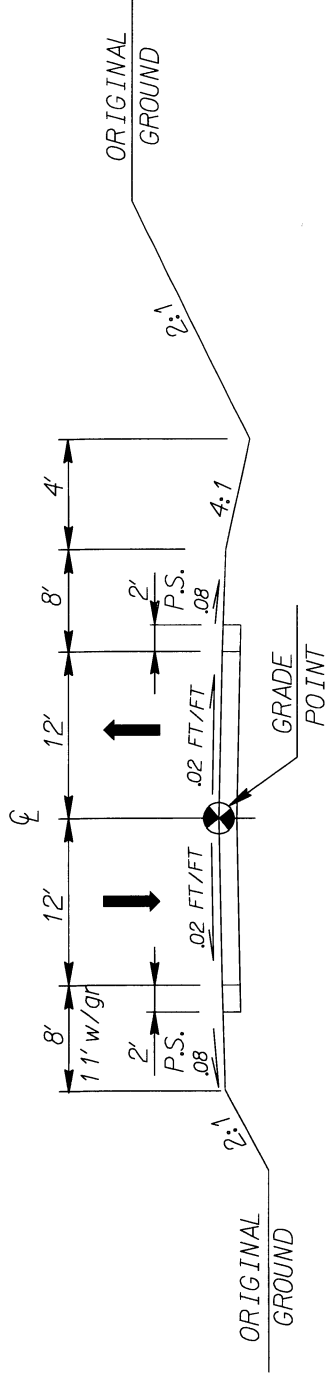
North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

ASHE COUNTY

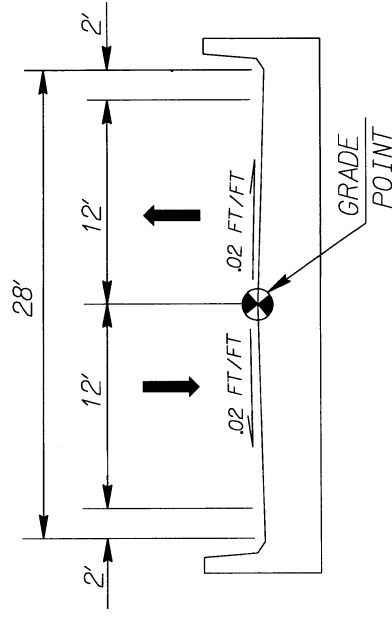
BRIDGE No. 57 ON NC 88
OVER BUFFALO CREEK

T.I.P. No. B-3300


FIGURE 3a

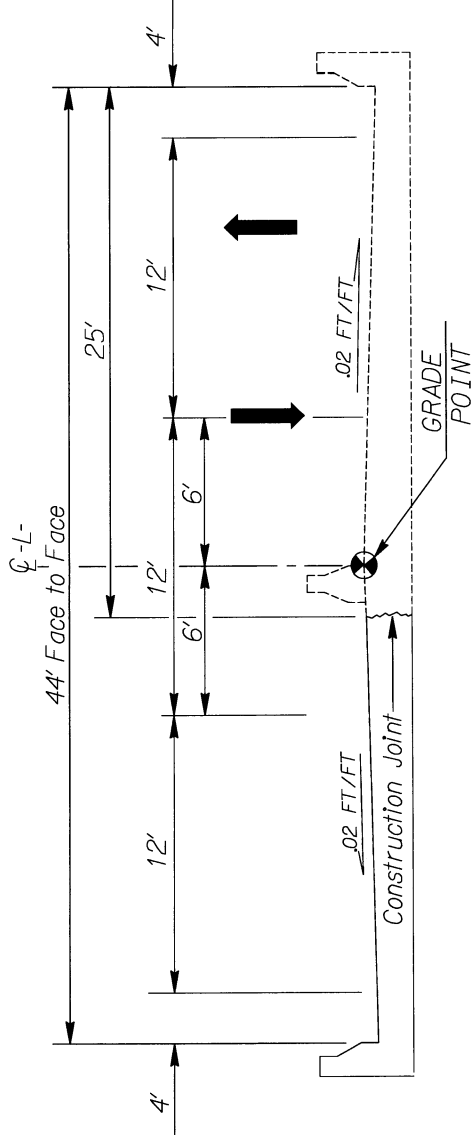
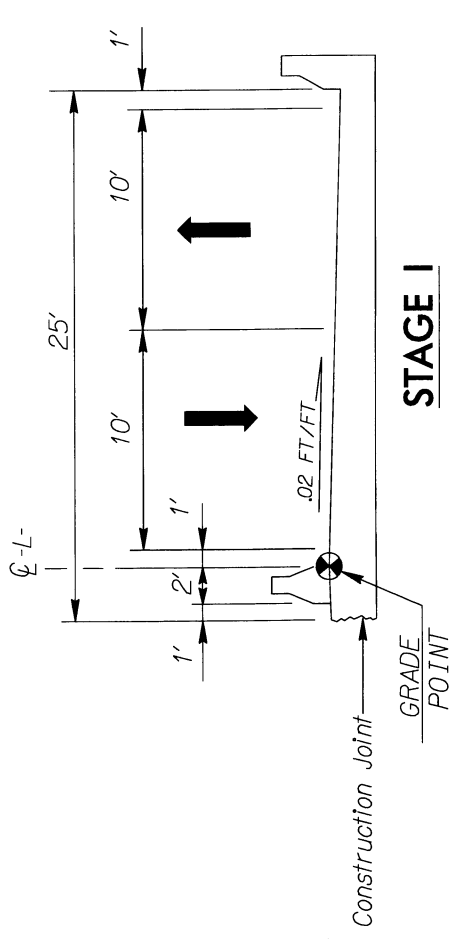


DETOUR ROADWAY TYPICAL SECTION



TYPICAL DETOUR BRIDGE SECTION

 <p>North Carolina Department of Transportation Project Development and Environmental Analysis Branch</p>	<p>ASHE COUNTY</p> <p>BRIDGE No. 57 ON NC 88 OVER BUFFALO CREEK</p> <p>T.I.P. No. B-3300</p>
	<p>FIGURE 3b</p>



**TYPICAL BRIDGE SECTION
FOR STAGE CONSTRUCTION**

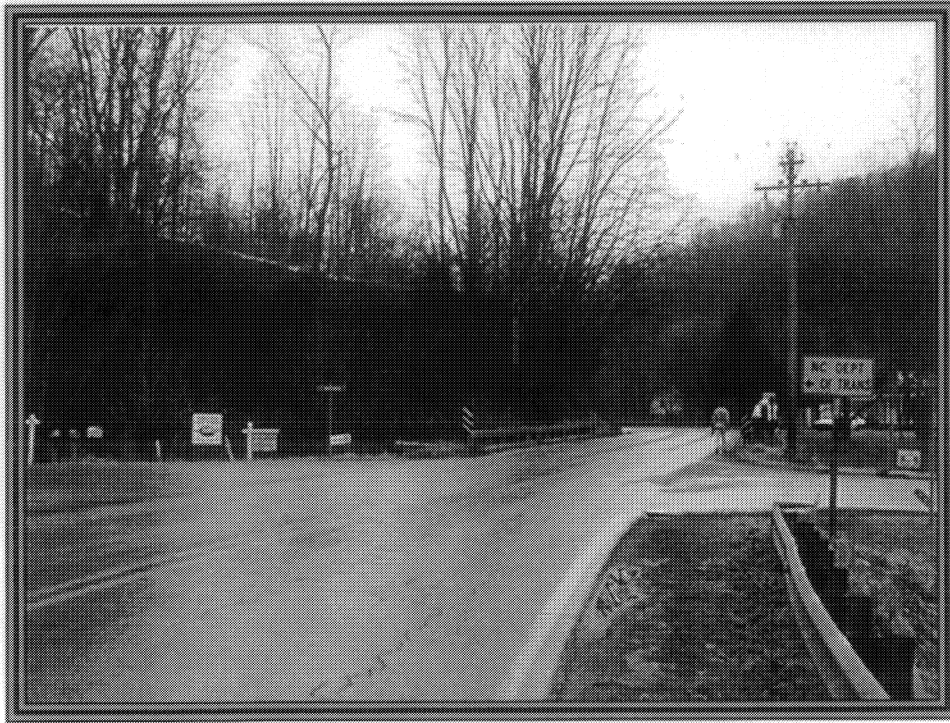


North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

ASHE COUNTY

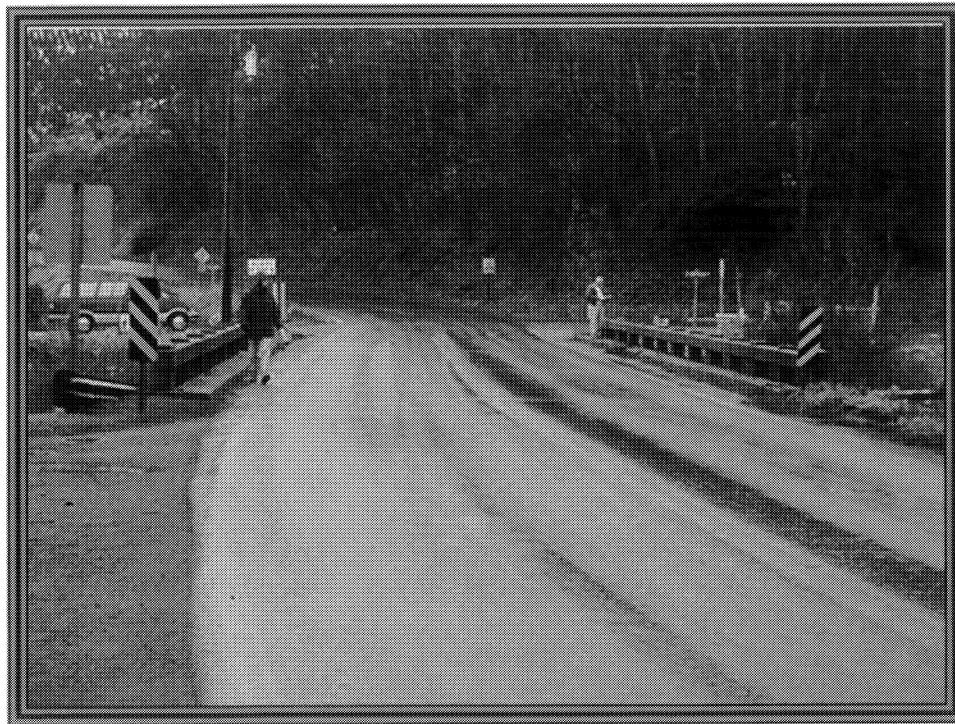
BRIDGE No. 57 ON NC 88
OVER BUFFALO CREEK

T.I.P. No. B-3300



**ASHE COUNTY
BRIDGE No. 57
B-3300**

Looking North



Looking South

Figure 4a



**ASHE COUNTY
BRIDGE No. 57
B-3300**

Looking at East side



Looking at West side

Figure 4b

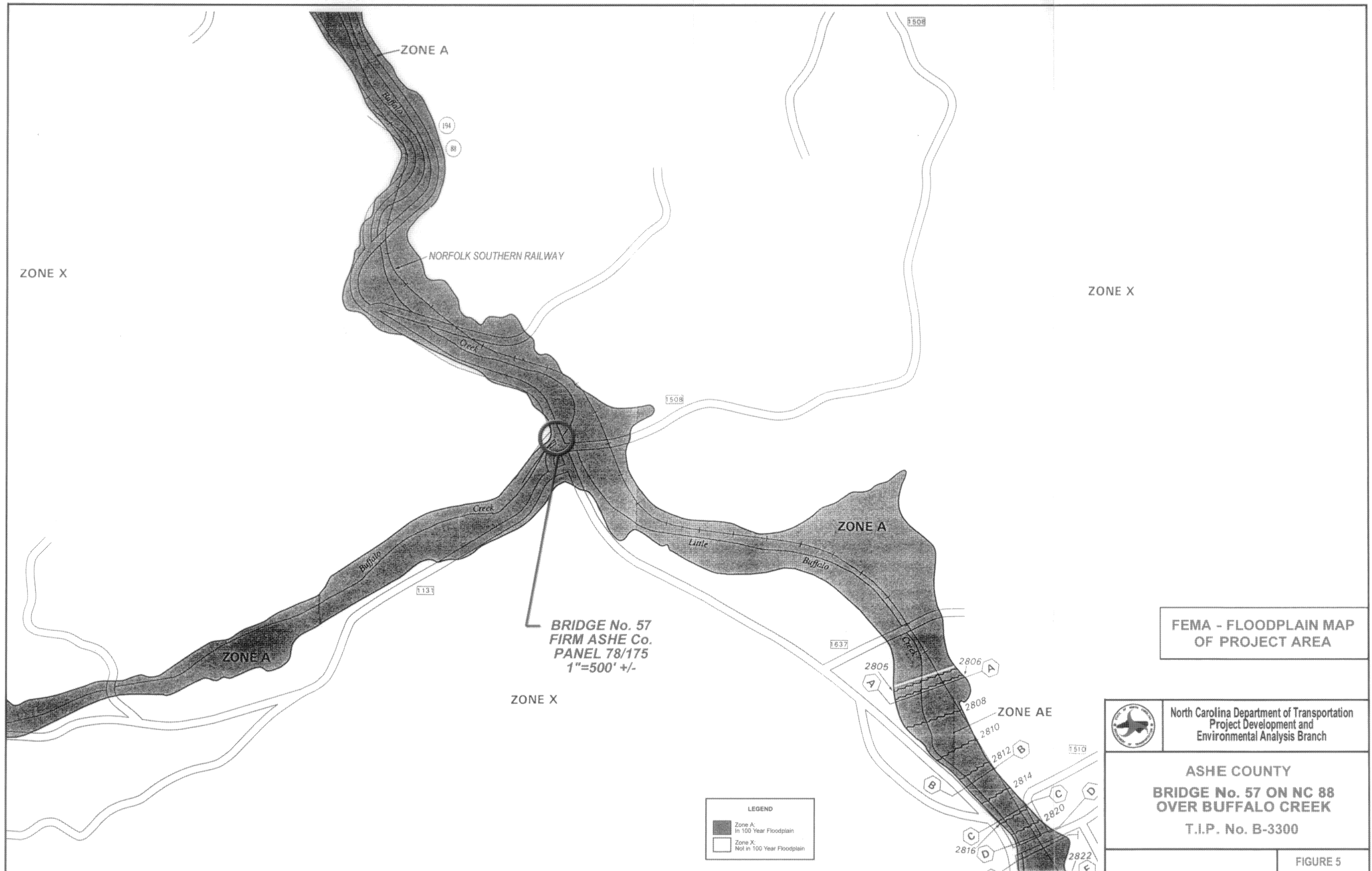


Figure 6

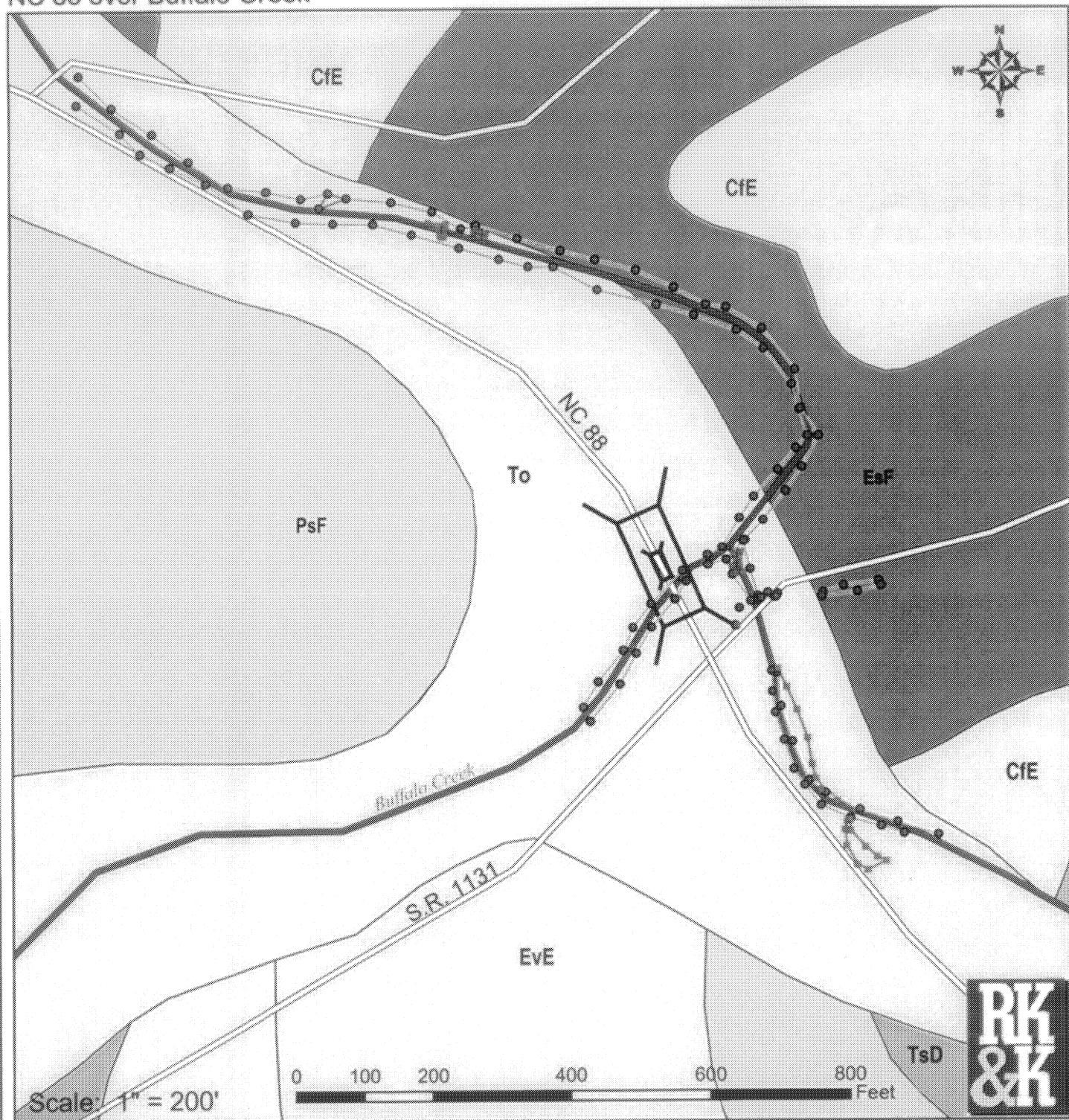
Jurisdictional Streams and Wetlands

B-3300
 Bridge No. 57
 Ashe County
 NC 88 over Buffalo Creek

GPS Data

- Stream banks
- Wetlands Boundaries
- Stream GPS points
- Wetland GPS points

- Roads
- Streams
- Prime Farmland
- State and Local Importance
- 1/2 Mile Bridge Buffer



**RK
&K**

APPENDIX



☐ North Carolina Wildlife Resources Commission ☐

Charles R. Fullwood, Executive Director

TO: Ms. Kim Leight
Rummel, Klepper & Kahl

FROM: Maryellen Haggard, Highway Project Coordinator
Habitat Conservation Program *Maryellen Haggard*

DATE: August 6, 2001

SUBJECT: NCDOT Bridge Replacements in Ashe, Wilkes, Watauga, and Alleghany counties of North Carolina. TIP Nos. B-3300, B-3607, B-3714, B-3922, B-3925, B-3926, B-3928, B-4007, and B-4010

RECEIVED
AUG 09 2001

RUMMEL, KLEPPER & KAHL
RALEIGH, NC

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Wet concrete should not be allowed to contact stream water. This will lessen the chance of altering the stream's water chemistry and causing a fish kill.
4. If possible, bridge supports (bents) should not be placed in the stream.
5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should

be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.
12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.
13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.
15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.
16. All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for fish passage. The culvert or pipe invert should be buried at least 1 foot below the natural streambed. The installation of the culvert or pipe should insure that all waters flow without freefalling or damming on either end during low flow conditions. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.
2. When two pipes are installed, only the lower pipe should be buried 12" into the substrate so that all base flows continue uninterrupted in the lower pipe during normal and low flow conditions to maintain aquatic life passage. The bottom of the second pipe should be placed at grade or at bankfull elevation. The second pipe should remain dry during normal flows to allow for wildlife passage. Where disrupted, natural floodplain benching should be restored upstream and downstream of the second, "dry", pipe.
3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.
4. Riprap should not be placed on the streambed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3300 – Ashe County – Bridge No. 57 over Buffalo Creek. Buffalo Creek at this location in all likelihood contains wild trout. The bridge is located at a major intersection. A culvert would be a hindrance to fish as well as wildlife passage. We will require a trout moratorium from Oct. 15th - April 15th.
2. B-3607 – Ashe County – Bridge No. 503 over Buffalo Creek. Buffalo Creek at the bridge replacement in all likelihood contains wild trout. We will require a trout moratorium from Oct. 15th - April 15th.
3. B-3714 – Wilkes County – Bridge No. 83 over Mulberry Creek. Mulberry Creek supports small mouth bass and redbreast sunfish at this location. We will require a moratorium from May 1st - June 30th.

4. B-3922 – Watauga County – Bridge No. 316 over Cove Creek. Cove Creek is designated Public Mountain Trout Water. In addition to stocked fish, it contains some wild brown trout. We will require a trout moratorium from Oct. 15th - April 15th. The bridge should be replaced with another bridge. We are concerned that a box culvert will impede fish passage.
5. B-3925 – Watauga County – Bridge No. 35 over Meat Camp Creek. Meat Camp Creek is designated Public Mountain Trout Water. In addition to stocked fish, it contains some wild brown trout. We will require a trout moratorium from Oct. 15th - April 15th. The bridge should be replaced with another bridge. We are concerned that a box culvert will impede fish passage.
6. B-3926 – Watauga County – Bridge No. 36 over Meat Camp Creek. Same comments as B-3925.
7. B-3928 – Watauga-Ashe County – Bridge No. 334 over South Fork New River. We will require a small mouth bass/ rock bass moratorium from May 1st - June 30th. The South Fork New River is high quality water and designated "scenic" by the National Wild and Scenic Rivers System. The bridge should be replaced with another bridge. This is a popular canoe section; the new bridge should be at the appropriate height so boaters do not have to portage.
8. B-4007 – Alleghany County – Bridge No. 38 over Crab Creek. Crab Creek is in a High Quality Water Zone and is designated Hatchery Supported Water. We will require a trout moratorium from Oct. 15th - April 15th.
9. B-4010 – Ashe County – Bridge No. 7 over South Fork New River. We will require a small mouth bass/ rock bass moratorium from May 1st - June 30th. The South Fork New River is high quality water and designated "scenic" by the National Wild and Scenic Rivers System. The bridge should be replaced with another bridge.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. We are comfortable with the bridge demolition proposed, but are concerned about aquatic life passage with the new structure. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks; reducing habitat fragmentation and vehicle related mortality at highway crossings.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (336) 527-1549. Thank you for the opportunity to review and comment on these projects.

00-106
ESM
KSL



Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Gregory J. Thorpe, Ph.D.
Acting Director
Division of Water Quality

August 15, 2001

MEMORANDUM

To: Elmo Vance, NCDOT Project Development & Environmental Analysis Branch
Through: John Dorney, NC Division of Water Quality
From: Cynthia F. Van Der Wiele, NCDOT Coordinator *cfv*

Subject: Scoping Comments for Eleven Bridge Replacement Projects

This memo is in reference to your correspondence dated July 23, 2001, in which you requested scoping comments for the above projects. The Division of Water Quality (DWQ) requests that the following topics be addressed:

1. Bridge projects shall comply with the requirements for Water Supply Watershed, High Quality Waters and Outstanding Resource Waters with regards to stormwater management, sedimentation and erosion control and buffer requirements.
2. Ensure that sediment & erosion control measures are not placed in wetlands.
3. Borrow/waste areas should avoid wetlands to the maximum extent practicable. Prior to the approval of any borrow/waste site in a wetland, the contractor must obtain a 401 certification from DWQ.
4. The DWQ prefers that the structures that will be replacing the eleven deficient bridges will be bridges. All structures shall be installed in such a manner that the original stream profiles are not altered (i.e. the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions are to be maintained above and below locations of culvert extensions.
5. All work shall be performed during low flow conditions.
6. Disturbance of the stream channels must be limited to only what is necessary to perform the bridge demolition and removal. Heavy equipment must be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.
7. All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
8. Written concurrence of 401 Water Quality Certification may be required for these projects (e.g., applications requesting coverage under NW 14 or Regional General Permit 198200031). Please be aware that 401 certification may be denied if wetland or water impacts have not been avoided and minimized to the maximum extent practicable.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Cynthia Van Der Wiele at (919) 733.5715.

Pc: Eric Alsmeyer, USACE Raleigh Field Office
Steve Lund, USACE Asheville Field Office
Tom McCartney, USFWS Raleigh Field Office
Marella Buncick, USFWS Asheville Field Office
MaryEllen Haggard, NCWRC
File Copy



Vance

**North Carolina Department of Cultural Resources
State Historic Preservation Office**

David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

August 27, 2001

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook *David Brook*
Deputy State Historic Preservation Officer

Re: Replace Bridge No. 57 on NC 88 over Buffalo Creek., B-3300,
Ashe County, ER 02-7210

AUG 29 2001

Thank you for your letter of July 23, 2001, concerning the above project.

Since there is no architectural survey for the Ashe County, we recommend that an architectural historian with NCDOT identify and evaluate all properties over fifty years of age within the project area and report the findings to us, including the bridge which was built in 1949.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources, which may be eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. We, therefore recommend that no archaeological investigation be conducted in connection with this project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

cc: Mary Pope Furr, NCDOT
Thomas Padgett, NCDOT

RECEIVED
AUG 31 2001

RUMMEL, KLEPPER & KAHL
RALEIGH, NC

Administration	Location	Mailing Address	Telephone/Fax
Restoration	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 • 733-8653
Survey & Planning	515 N. Blount St, Raleigh, NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 • 715-4801
		4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 • 715-4801

**CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR
THE NATIONAL REGISTER OF HISTORIC PLACES**

Project Description: Replace Bridge No. 57 on NC 88 over Buffalo Creek

On 10/18/01, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
☒ Federal Highway Administration (FHWA)
☒ North Carolina State Historic Preservation Office (HPO)
☐ Other

Reviewed the subject project at

- ☐ Scoping meeting
☐ Historic architectural resources photograph review session/consultation
☐ Other

All parties present agreed

- ☐ There are no properties over fifty years old within the project's area of potential effects.
- ☒ There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- ☒ There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, properties identified as Bridge 57 & Prop 1-9 are considered not eligible for the National Register and no further evaluation of them is necessary.
- ☒ There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- ☐ All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- ☒ There are no historic properties affected by this project. (Attach any notes or documents as needed)

Signed:

Mary Pope
Representative, NCDOT

10-18-01

Date

Nicholas C. Dawson
FHWA, for the Division Administrator, or other Federal Agency

10/18/01

Date

Claudia Brown
Representative, HPO

10-18-01

Date

Davidbrook
State Historic Preservation Officer

10-18-01

Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

Ashe County Board of Education

Donnie R. Johnson, Superintendent • Charles L. King, Chairman • Charles H. Jones, Jr., Vice Chairman • Richard Blackburn

P.O. Box 604, 320 South Street • Courier No. 15-65-01 • Jefferson, North Carolina 28640
(336) 246-7175 • (336) 246-7609 Fax

April 27, 2001

Ms. Elizabeth Mack
Rummel, Klepper & Kahl
Raleigh, NC

Dear Ms. Mack:

I apologize for being so late with this. I have listed below the information you requested on certain bridges in Ashe County.

Bridge #57 (T.I.P. B-3300)

We currently have 28 buses crossing this bridge both morning and afternoon, which makes this bridge the most heavily used by our buses. We have only one detour route, which would add 35 - 40 minutes (one way) for each bus. This would impact us negatively in two ways. First, this would cost our transportation budget an additional \$51,000. Secondly, we would have to pick up students earlier in the morning and deliver them later in the afternoon. These impacts are unacceptable. Hopefully, a temporary on-site detour near Bridge #57 could be an option.

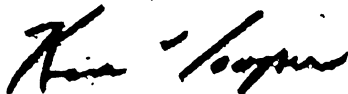
Bridge #503 (T.I.P. B-3607)

2 end
school This bridge is the one and only entrance to our middle school with about 15 buses crossing morning and afternoon. My understanding is that we could continue to use this bridge while the new one is under construction. 15 buses come in and stay, 3 buses (special educ.) come in & leave, - AM
15 buses leave, 3 buses come in and leave - PM
Bridge #7 (T.I.P. B-4010)

We currently have 4 buses crossing this bridge morning and afternoon. There is a detour route, which would add about 25 minutes. While this would also impact our budget and riding time, it is within acceptable limits.

If you have further questions, please feel free to call.

Sincerely,



Ken Cooper
Transportation Director

KVC:dgp

RELOCATION REPORT

North Carolina Department of Transportation

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

PROJECT:		COUNTY	Ashe	Alternate	1	of	3	Alternate
D. NO.:	B-3300	F.A. PROJECT						
DESCRIPTION OF PROJECT:	Bridge No. 57 over Buffalo Creek							

ESTIMATED DISPLACED					INCOME LEVEL				
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP
Residential	0	1	1	1	1	0	0	0	0
Businesses	0	0	0	0					
Farms	0	0	0	0					
Non-Profit	0	0	0	0					

ANSWER ALL QUESTIONS		Explain all "YES" answers.
Yes	No	
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
	X	6. Source for available housing (list).
X		7. Will additional housing programs be needed?
	X	8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M		\$ 0-150		0-20M		\$ 0-150	0
20-40M		150-250	1	20-40M	4	150-250	5
40-70M		250-400		40-70M	10	250-400	12
70-100M		400-600		70-100M	15	400-600	8
100 UP		600 UP		100 UP	30	600 UP	4
TOTAL	0		1		59		29

REMARKS (Respond by Number)

3) Similar business services in the area of the project are available and are Not being affected.

6) Housing availability determined by contact with local realtors, Listings for rental and sale in local newspapers.

8) Will be implemented as needed.

11) Thru Ashe County Housing Authority.

12) Yes, as indicated by local real estate listings and newspaper listings Sale and rental.

14) See Item No. 6.

Comments: (A) Available housing list was compiled from partial list and Does not indicate the total available housing in Ashe County. (B) There is a possibility that potential relocatees are minority however this Cannot be determined until initial contacts with those affected are Made.

<i>Harold B. Bowl</i>	<i>4-29-02</i>	<i>Am Simpson</i>	<i>5-3-02</i>
Right of Way Agent	Date	Approved by	Date

RELOCATION REPORT

North Carolina Department of Transportation

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

OBJECT:		COUNTY	Ashe	Alternate	2	of	3	Alternate
NO.:	B-3300	F.A. PROJECT						
DESCRIPTION OF PROJECT:	Bridge No. 57 over Buffalo Creek							

ESTIMATED DISPLACEES					INCOME LEVEL				
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP
Residential	0	1	1	1	1	0	0	0	0
Businesses	0	0	0	0					
Farms	0	0	0	0					
Non-Profit	0	0	0	0					

ANSWER ALL QUESTIONS									
Yes	No	Explain all "YES" answers.							
	X	1. Will special relocation services be necessary?							
	X	2. Will schools or churches be affected by displacement?							
X		3. Will business services still be available after project?							
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.							
	X	5. Will relocation cause a housing shortage?							
	X	6. Source for available housing (list).							
	X	7. Will additional housing programs be needed?							
X		8. Should Last Resort Housing be considered?							
	X	9. Are there large, disabled, elderly, etc. families?							
	X	10. Will public housing be needed for project?							
X		11. Is public housing available?							
X		12. Is it felt there will be adequate DSS housing available during relocation period?							
	X	13. Will there be a problem of housing within financial means?							
X		14. Are suitable business sites available (list source).							
		15. Number months estimated to complete RELOCATION? 12							

3. Will business services still be available after		REMARKS (Respond by Number)
--	--	-----------------------------

REMARKS (Respond by Number)

3) Similar business services in the area of the project are available and are Not being affected.

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Am Simpson 5-3-02

Harold B. Bowl 4-29-02 *Jimmy Lee Cavell* 4/29/02

Right of Way Agent Date Approved by Date

RELOCATION REPORT

North Carolina Department of Transportation

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

PROJECT:		COUNTY	Ashe	Alternate	3	of	3	Alternate
NO.:	B-3300	F.A. PROJECT						
DESCRIPTION OF PROJECT:	Bridge No. 57 over Buffalo Creek							

ESTIMATED DISPLACED					INCOME LEVEL				
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP
Residential	0	1	1	1	1	0	0	0	0
Businesses	0	0	0	0					
Farms	0	0	0	0					
Non-Profit	0	0	0	0					

ANSWER ALL QUESTIONS		
Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
	X	6. Source for available housing (list).
X		7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M		\$ 0-150		0-20M		\$ 0-150	0
20-40M		150-250	1	20-40M	4	150-250	5
40-70M		250-400		40-70M	10	250-400	12
70-100M		400-600		70-100M	15	400-600	8
100 UP		600 UP		100 UP	30	600 UP	4
TOTAL	0		1		59		29

REMARKS (Respond by Number)
3) Similar business services in the area of the project are available and are Not being affected.
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Comments: (A) Available housing list was compiled from partial list and Does not indicate the total available housing in Ashe County. (B) There is a possibility that potential relocatees are minority however this Cannot be determined until initial contacts with those affected are Made.

Am Simpson 5-3-02

Harold B. Bowl 4-29-02
Right of Way Agent Date

Jimmy Lee Canale 4/29/02
Approved by Date



REPLACEMENT OF BRIDGE NO. 57 OVER BUFFALO CREEK

Ashe County, North Carolina

October 2001

T.I.P. No. B-3300

Newsletter No. 1

NCDOT to Replace Bridge No. 57

This newsletter is published by the North Carolina Department of Transportation (NCDOT) to inform citizens about the proposed replacement of Bridge No. 57 on NC 88 over Buffalo Creek (tributary to the New River) in Ashe County. Right-of-way acquisition and construction are scheduled to begin in 2003 and 2004, respectively.

Planning Studies Initiated

During **Step 1** of the planning process, information was collected on the existing human and natural environments. This information was used to identify preliminary alternatives for replacing Bridge No. 57. In **Step 2** the preliminary alternatives were evaluated and, based on their potential impacts, three "reasonable and feasible" alternatives were selected for detailed environmental studies. **Step 3** involves conducting detailed environmental studies for the "reasonable and feasible" alternatives. Following completion of the detailed studies, **Step 4** will consist of selecting the preferred alternative. **Step 5** will be the completion of the environmental document.

NOTICE

Citizens Informational Workshop

DATE: November 7, 2001

TIME: 4:00 – 7:00 PM

PLACE: Ashe County Cooperative Extension
134 Government Circle
Jefferson, NC (1st floor, conference room)

Description of Alternatives

Step 3 includes the evaluation of three "reasonable and feasible" alternatives. These alternatives are briefly described below:

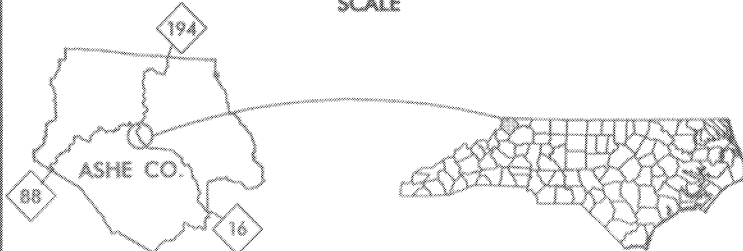
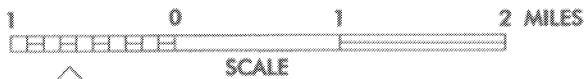
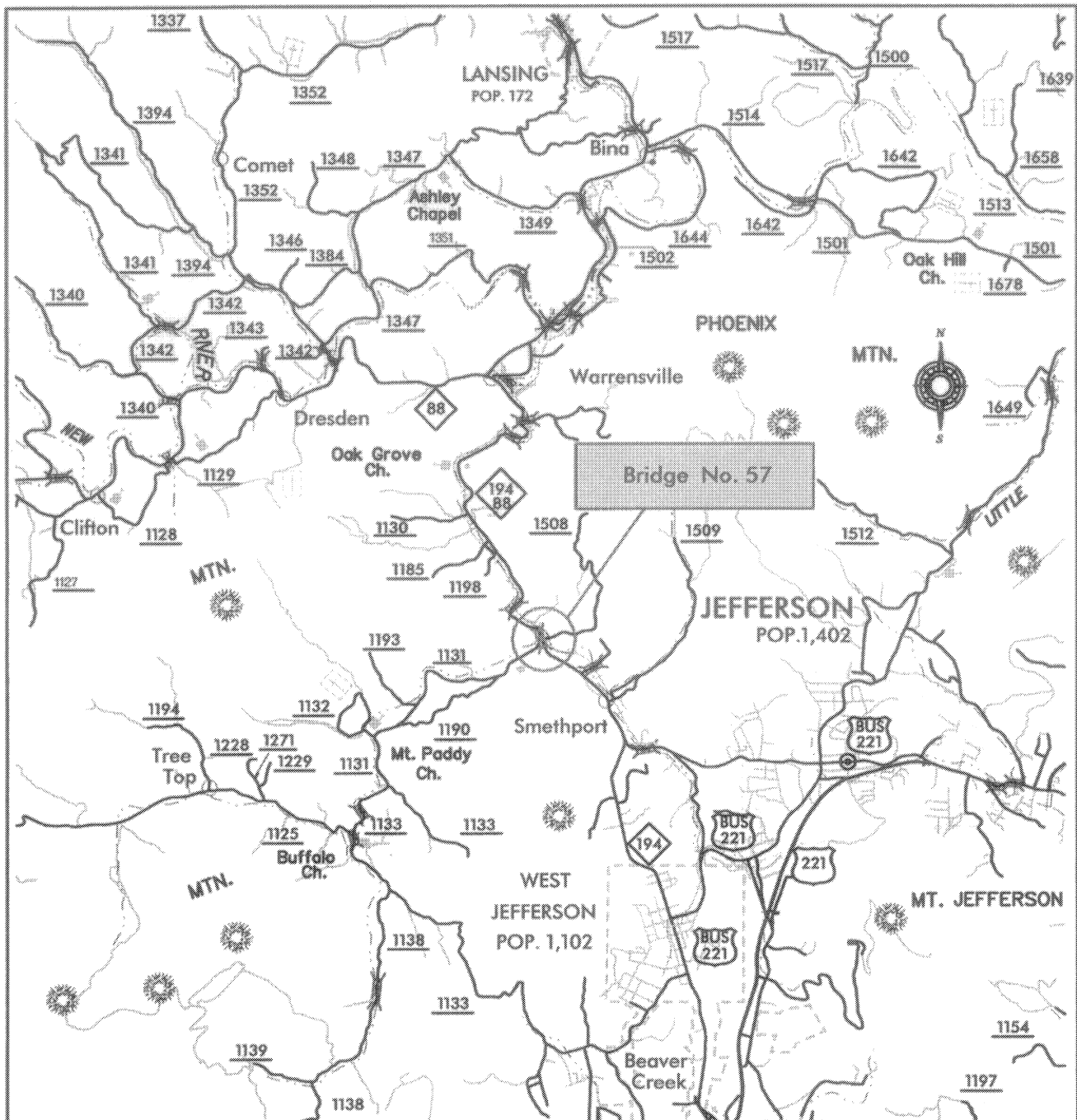
Alternative 1 – replaces bridge on the existing alignment. An "off-site" detour will be used to maintain traffic during the construction period.

Alternative 2 - replaces bridge on the existing alignment. An "on-site" detour located along the west side (upstream) will be used to maintain traffic during the construction period.

Alternative 3 - replaces bridge on new alignment approximately 50 feet west (upstream) of the existing location. Traffic will be maintained on the existing bridges during construction.

Informational Workshop

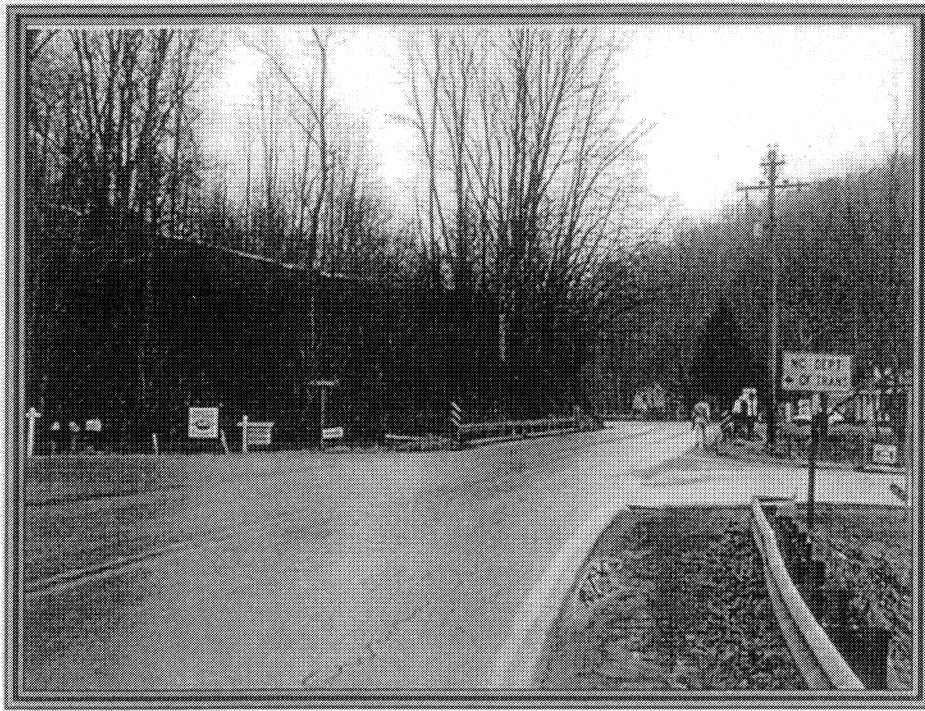
A Citizens Informational Workshop will be held on November 7, 2001 at the Ashe County Cooperative Extension Building from 4:00 to 7:00 p.m. The workshop will provide citizens and public officials an opportunity to review and comment on the preliminary alternatives and the proposed project schedule. The workshop will be an open-house format with informal discussions on an individual basis.



North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

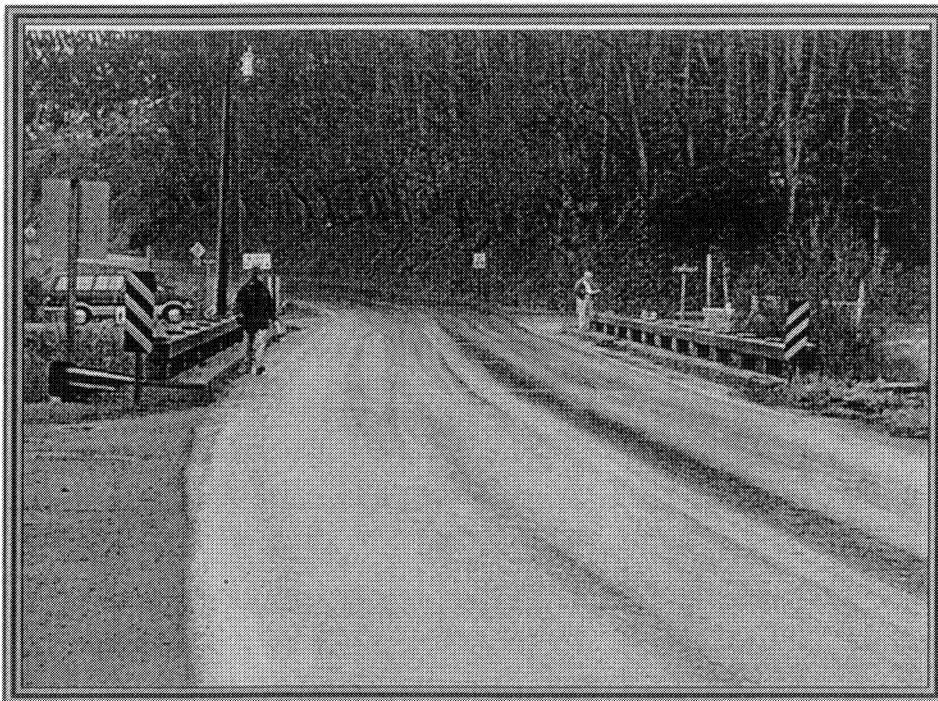
ASHE COUNTY
BRIDGE No. 57 ON NC 88
Buffalo Creek
T.I.P. No. B-3300

FIGURE 1



**ASHE COUNTY
BRIDGE No.57
B-3300**

Looking North



Looking South

NCDOT Welcomes Citizen Input

Public Involvement is an important part of the planning process. The North Carolina Department of Transportation is committed to ensuring all issues of concern to the public are addressed and considered before any recommendations or decisions are made. Your opinions are important to us! Please send your comments to the addresses listed below:

Mr. Elmo Vance

Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-3141 Ext. 262
eevance@dot.state.nc.us

or

Mr. J. T. Peacock, Jr., P.E.

or **Ms. Kimberly S. Leight**
Rummel, Klepper & Kahl, LLP
5800 Faringdon Place, Suite 105
Raleigh, NC 27609-3960
(888) 521-4455
[kleight@rkkengineers.com](mailto:kleicht@rkkengineers.com)

If you have questions on other transportation projects, please call our Customer Service Office toll free at 1-877-DOT-4YOU or check our website at www.dot.state.nc.us.

HOTLINE

A project HOTLINE has been established to provide a toll free telephone number for information requests. Please call **(888) 521-4455** for information regarding the replacement of Bridge No. 57 over Buffalo Creek (T.I.P. No. B-3300).

PROJECT SCHEDULE

The schedule for the project is shown below:

Fall 2002	Complete Environmental Document
Fall 2002	Select Preferred Alternative
2003	Begin Right-of-Way Acquisition
2004	Begin Construction

Mr. Elmo Vance
North Carolina Department of Transportation
Project Development & Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

ADDRESS CORRECTION REQUESTED

